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Come calcolare il volume di un parallelepipedo

Il calcolo del volume di un parallelepipedo è un'operazione fondamentale in geometria e può essere facilmente realizzato seguendo una formula specifica. Innanzitutto, è importante comprendere le dimensioni necessarie per eseguire il calcolo: lunghezza, larghezza e altezza. Per iniziare, definiamo cosa si intende per parallelepipedo. Si tratta di un solido delimitato da sei facce, ciascuna delle quali è un rettangolo. Di conseguenza, il volume può essere calcolato attraverso la seguente formula: Volume = Lunghezza × Larghezza × Altezza Inoltre, per facilitare la comprensione, possiamo suddividere il processo di calcolo in passaggi chiave. Di seguito riportiamo una serie di fasi che possono aiutare chiunque desideri calcolare il volume di un parallelepipedo: Identificare le dimensioni: Iniziamo a misurare la lunghezza, la larghezza e l'altezza del parallelepipedo. È possibile utilizzare un metro a nastro o un righello, a seconda delle dimensioni del oggetto. Applicare la formula: Moltiplichiamo le tre misure precedentemente ottenute seguendo la formula del volume. Risultato finale: Il numero risultante rappresenterà il volume del parallelepipedo, espresso nelle unità cubiche corrispondenti (ad esempio, metri cubi se le misure sono in metri). In conclusione, calcolare il volume di un parallelepipedo è un'operazione piuttosto semplice, ma è fondamentale prestare attenzione alle unità di misura e alle dimensioni da utilizzare. Con una pratica regolare, diventeremo sempre più abili in queste operazioni. Infine, ricordiamoci che conoscere il volume di oggetti quotidiani può rivelarsi estremamente utile in numerose applicazioni pratiche. Come si calcola il volume di un parallelepipedo Quando ci si chiede come calcolare il volume di un parallelepipedo, è fondamentale considerare alcuni aspetti chiave che rendono l'operazione ancora più chiara e comprensibile. Prima di tutto, la formula di base rimane invariata e richiede tre dimensioni: lunghezza, larghezza e altezza. È utile notare che il volume, rappresentato come Volume = Lunghezza × Larghezza × Altezza, non solo ci fornisce un valore numerico, ma ci aiuta anche a capire il rapporto tra lo spazio occupato e le dimensioni stesse del parallelepipedo. Per rendere il processo di calcolo ancora più accessibile, possiamo organizzare i passaggi in modo sistematico: Raccogliere gli strumenti necessari: Assicuriamoci di avere a disposizione un metro e un quaderno per annotare le misure delle dimensioni che andremo a prendere. Identificare e misurare: Prendiamo le misure della lunghezza, della larghezza e dell'altezza, facendo attenzione a utilizzare sempre le stesse unità di misura. Calcolare il volume: Moltiplichiamo insieme le dimensioni misurate per trovare il volume. Questo ci permetterà di avere un rapporto chiaro tra le dimensioni e lo spazio. In sintesi, grazie a questa metodologia di calcolo del volume di un parallelepipedo, possiamo affrontare il problema in modo strutturato e chiaro. Ricordiamoci sempre di applicare le giuste unità di misura per ottenere risultati precisi e utili nella vita quotidiana. Dettagli sul calcolo del volume di un parallelepipedo Per approfondire ulteriormente come si calcola il volume di un parallelepipedo, è utile considerare alcuni esempi pratici che possono semplificare l'intero processo. Immaginiamo di avere un parallelepipedo con le seguenti dimensioni: lunghezza di 5 metri, larghezza di 3 metri e altezza di 2 metri. Utilizzando i dati sopra, la formula del volume diventa: Volume = 5 m × 3 m × 2 m Ora, eseguendo la moltiplicazione, otteniamo: Volume = 30 m³ Questo ci informa che il volume del nostro parallelepipedo è di 30 metri cubi. Per facilitare ulteriormente la comprensione, ecco alcuni passaggi essenziali da seguire: Verificare le unità di misura: Assicuriamoci che tutte le misure siano espresse nelle stesse unità, al fine di evitare confusione. Utilizzare strumenti appropriati: Un metro a nastro e un foglio di carta sono fondamentali per annotare e calcolare. Ripetere il calcolo: Eseguire il calcolo più di una volta permette di accertarsi della correttezza del risultato. In sintesi, attraverso questi semplici esempi ed istruzioni pratiche, calcolare il volume di un parallelepipedo diventa un compito accessibile e comprensibile per tutti noi. Con un po' di pratica, saremo in grado di affrontare qualsiasi problema geometrico con sicurezza. Come si calcola il volume di un parallelepipedo Per approfondire come calcolare il volume di un parallelepipedo, è essenziale seguire alcuni passaggi fondamentali. Premettendo che la formula da utilizzare è sempre la stessa, ovvero Volume = Lunghezza × Larghezza × Altezza, vediamo ora i dettagli pratici necessari per eseguire il calcolo in modo preciso. Innanzitutto, assicurarsi di avere un metro a disposizione per le misurazioni e un taccuino per annotare i dati. Successivamente, l'importanza di mantenere coerenza nelle unità di misura è cruciale, evitando misure confuse. A questo punto, possiamo procedere con la formula: calcolando il prodotto delle dimensioni, il risultato ottenuto rappresenterà il volume. Raccogliere gli strumenti necessari: Assicuriamoci di avere un metro e un quaderno. Misurare con attenzione: Prendiamo lunghezza, larghezza e altezza con precisione. Calcolare e annotare: Moltiplichiamo e scriviamo il risultato. Questo conta nell'ottimizzare i calcoli. In conclusione, seguendo questi semplici passaggi e prestando attenzione alle unità di misura, calcolare il volume di un parallelepipedo sarà un'attività semplice e ben gestita. Come si calcola il volume di un parallelepipedo Calcolare il volume di un parallelepipedo si rivela un'operazione di primaria importanza nel campo della geometria, essendo fondamentale per molte applicazioni pratiche. Per effettuare il calcolo, è necessario determinare con precisione le dimensioni del parallelepipedo, ovvero lunghezza, larghezza e altezza. Affinché il calcolo sia chiaro e utile, seguiamo la formula di base: Volume = Lunghezza × Larghezza × Altezza Inoltre, è utile seguire alcuni passaggi metodici che possiamo riassumere come segue: Identificazione delle misure: Prendiamo il tempo necessario per misurare accuratamente le dimensioni richieste utilizzando strumenti come un metro a nastro. Calcolo esatto: Moltiplichiamo le tre dimensioni per ottenere il volume. Controllo finale: Accertiamoci che le misure siano nelle stesse unità di misura per garantire un risultato corretto. Con queste semplici procedure, anche i concetti più complessi diventano gestibili. Così, calcolare il volume di un parallelepipedo ci permette di comprendere meglio le proprietà dei solidi e ci prepara a risolvere in modo efficace problemi geometrici più complessi. Il volume del parallelepipedo si calcola come V=Sb·h, ossia moltiplicando l'area di base per l'altezza. In un parallelepipedo qualsiasi la base è un parallelogramma, e si dice altezza la distanza tra il piano della base e il piano della faccia parallela ad essa.In genere nei problemi di Geometria Solida di Scuola Media e Scuole Superiori si ha a che fare con il parallelepipedo rettangolo, le cui facce sono sei rettangoli.Dunque, qui ci occuperemo solo del parallelepipedo rettangolo, la cui altezza coincide con l'altezza di ciascuno dei quattro rettangoli che corrispondono alle facce laterali.Di conseguenza il volume si calcola moltiplicando l'area del rettangolo di base per l'altezza del parallelepipedo. Volume parallelepipedo rettangolo = a·b·h.Indichiamo con le tre dimensioni, dove sono base e altezza del rettangolo di base e è l'altezza del parallelepipedo. Siano inoltre l'area della superficie di base e il volume.DatiFormulaVolume parallelepipedo rettangolo con dimensioniVolume parallelepipedo rettangolo con area di base e altezzaPer tutte le formule sul parallelepipedo rettangolo, dirette e inverse, vi rimandiamo alla lezione del link.Calcolo volume parallelepipedo rettangolo con area di base e altezzaSe sono note l'area del rettangolo di base e la misura dell'altezza, per calcolare il volume si moltiplica l'area di base per l'altezza.EsempioL'area di base di un parallelepipedo rettangolo è di 7 metri quadrati. Calcolarne il volume sapendo che la sua altezza misura 1,5 metri.Svolgimento:Calcolo volume parallelepipedo rettangolo con le tre dimensioniConoscendo le misure delle tre dimensioni del parallelepipedo, possiamo calcolare l'area di base come prodotto tra base e altezza del relativo rettangolo.Fatto ciò, si può calcolare il volume moltiplicando l'area di base per l'altezza:In alternativa si può determinare il volume in un solo passaggio, moltiplicando tra loro le misure delle tre dimensioni:EsempioDeterminare il volume di un parallelepipedo rettangolo le cui dimensioni misurano 8, 4 e 3 cm.Svolgimento:Calcolo volume parallelepipedo rettangolo con area della superficie totalePer trovare il volume nota l'area totale si deve necessariamente conoscere la misura di due dimensioni del parallelepipedo. In questo modo potremo risalire alla dimensione incognita invertendo la formula per l'area della superficie totale:EsempioL'area totale di un parallelepipedo rettangolo è di 54 cm2. Calcolare il volume sapendo che l'altezza del parallelepipedo misura 1,5 cm e che una delle dimensioni del rettangolo di base misura 3 cm.Svolgimento: sappiamo chePer calcolare il volume ci serve , ossia la misura dell'altra dimensione di base. Ricaviamola dalla formula per l'area della superficie totale:Invertiamo l'uguaglianza e dividiamo entrambi i membri per 2:Portiamo l'addendo che non contiene il termine a secondo membro:Raccogliamo a fattor comune :Arrivati a questo punto sostituiamo con 54 cm2, con 3 cm e con 1,5 cm.Per ricavare il valore di dobbiamo dividere entrambi i membri per 4,5 cm.Conoscendo le misure delle tre dimensioni del parallelepipedo, possiamo calcolare il volume:Calcolo volume parallelepipedo con area della superficie lateraleL'area laterale è il prodotto tra il perimetro del rettangolo di base e l'altezza del parallelepipedo:Per poter determinare il volume dalla superficie laterale il testo del problema deve fornirci qualche altro dato, come la misura di due dimensioni del parallelepipedo oppure una qualche relazione tra di esse.EsempioBase e altezza del rettangolo di base misurano rispettivamente 2 e 6 metri. Calcolare il volume del parallelepipedo sapendo che l'area della superficie laterale è di 40 metri quadrati.Svolgimento: calcoliamo il perimetro del rettangolo di base moltiplicando per 2 la somma delle misure di base e altezza:Invertendo la formula dell'area laterale, possiamo determinare la misura dell'altezza del parallelepipedo:Abbiamo tutto quello che ci occorre per calcolare il volume:ApprofondimentiQualche spunto di approfondimenti per concludere in bellezza:formulario sul parallelepipedo rettangolo;scheda di esercizi svolti sul parallelepipedo rettangolo. Il parallelepipedo è una figura geometrica tridimensionale fondamentale, ampiamente utilizzata in matematica, architettura e ingegneria. In questo articolo, esploreremo in dettaglio le formule del parallelepipedo, le sue proprietà geometriche e le applicazioni pratiche, fornendo una guida completa per comprendere e utilizzare questa importante forma geometrica. Introduzione al parallelepipedo Definizione e caratteristiche principali Il parallelepipedo è un solido geometrico tridimensionale caratterizzato da sei facce rettangolari parallele a due a due. È una figura che appartiene alla famiglia dei prismi, con la particolarità di avere tutte le facce rettangolari. Le caratteristiche principali del parallelepipedo includono: Sei facce rettangolari Dodici spigoli Otto vertici Tre coppie di facce parallele e congruenti La forma del parallelepipedo è determinata dalle sue tre dimensioni principali: lunghezza (l), larghezza (w) e altezza (h). Queste dimensioni sono fondamentali per il calcolo di varie proprietà geometriche e per l'applicazione delle formule del parallelepipedo. Tipi di parallelepipedi Esistono diversi tipi di parallelepipedi, ciascuno con caratteristiche uniche: Parallelepipedo rettangolo: Tutte le facce sono rettangoli e gli angoli interni sono retti (90°). È il tipo più comune e include forme come scatole e mattoni. Cubo: Un caso speciale di parallelepipedo rettangolo in cui tutte le facce sono quadrati e tutte le dimensioni sono uguali (l = w = h) Parallelepipedo obliquo: Le facce sono ancora rettangolari, ma gli angoli tra le facce non sono necessariamente retti. Romboedro: Un parallelepipedo in cui tutte le facce sono rombi congruenti. Proprietà geometriche del parallelepipedo Facce, spigoli e vertici Il parallelepipedo possiede caratteristiche geometriche ben definite: Facce: 6 facce rettangolari, organizzate in 3 coppie di facce parallele e congruenti. Spigoli: 12 spigoli in totale, con 4 spigoli per ogni dimensione (lunghezza, larghezza, altezza) Vertici: 8 vertici, ciascuno formato dall'intersezione di tre spigoli. La disposizione di questi elementi determina la forma e le proprietà del parallelepipedo. Diagonali del parallelepipedo Le diagonali sono linee rette che collegano vertici opposti del parallelepipedo. Ci sono due tipi di diagonali: Diagonali delle facce: Ogni faccia rettangolare ha due diagonali. In totale, ci sono 12 diagonali delle facce in un parallelepipedo. Diagonali spaziali: Queste sono le linee che attraversano l'interno del parallelepipedo, collegando vertici opposti. Ci sono 4 diagonali spaziali in un parallelepipedo. La lunghezza della diagonale spaziale può essere calcolata utilizzando il teorema di Pitagora tridimensionale: $$d = \sqrt{l^{2} + w^{2} + h^{2}}$$d=l2+w2+h2 dove d è la lunghezza della diagonale, e l, w, h sono rispettivamente lunghezza, larghezza e altezza del parallelepipedo. Angoli interni Gli angoli interni di un parallelepipedo rettangolo sono tutti retti (90°). Questo significa che: Ogni faccia ha quattro angoli retti. Gli angoli tra facce adiacenti sono retti. Gli angoli diedri (angoli tra due facce che si incontrano lungo uno spigolo) sono tutti di 90°. Nei parallelepipedi obliqui, gli angoli possono variare, ma le facce opposte rimangono sempre parallele. Formule fondamentali del parallelepipedo Formula del volume Il volume di un parallelepipedo è dato dal prodotto delle sue tre dimensioni: $$V = l \times w \times h$$V=l×w×h dove: V è il volume l è la lunghezza w è la larghezza h è l'altezza Questa formula è fondamentale per calcolare la capacità interna del parallelepipedo. Formula dell'area totale L'area totale di un parallelepipedo è la somma delle aree di tutte le sue facce. Si calcola con la seguente formula: $$A_{tot} = 2(lw + lh + wh)$$Atot=2(lw+lh+wh) dove: $$A_{tot}$$Atot è l'area totale l, w, h sono rispettivamente lunghezza, larghezza e altezza Questa formula è utile per calcolare, ad esempio, la quantità di materiale necessario per coprire completamente la superficie di un oggetto a forma di parallelepipedo. Formula dell'area laterale L'area laterale è la somma delle aree delle quattro facce laterali del parallelepipedo, escludendo la base e la faccia superiore. Si calcola con la formula: $$A_{lat} = 2h(l + w)$$Alat=2h(l+w) dove: $$A_{lat}$$Alat è l'area laterale h è l'altezza l è la lunghezza w è la larghezza Questa formula è particolarmente utile quando si deve calcolare, ad esempio, la superficie da dipingere di una stanza rettangolare, escludendo il pavimento e il soffitto. Calcolo delle dimensioni del parallelepipedo Come trovare l'altezza Se si conoscono il volume e le altre due dimensioni (lunghezza e larghezza), l'altezza può essere calcolata usando la formula del volume riarrangiata: $$h = \frac{V}{l \times w}$$h=l×wV dove V è il volume, l è la lunghezza e w è la larghezza. Come trovare la lunghezza e la larghezza Similmente, se si conoscono il volume, l'altezza e una delle altre dimensioni, si può calcolare la dimensione mancante. Per esempio, per trovare la lunghezza: $$l = \frac{V}{w \times h}$$w=l×hV E per la larghezza: $$w = \frac{V}{l \times h}$$w=l×hV Queste formule sono utili in situazioni pratiche dove si deve determinare una dimensione mancante del parallelepipedo. Formule avanzate per il parallelepipedo Formula della diagonale La formula per calcolare la lunghezza della diagonale spaziale di un parallelepipedo è: $$d = \sqrt{l^{2} + w^{2} + h^{2}}$$d=l2+w2+h2 dove d è la lunghezza della diagonale, e l, w, h sono rispettivamente lunghezza, larghezza e altezza del parallelepipedo. Questa formula è un'estensione tridimensionale del teorema di Pitagora e ha importanti applicazioni in geometria e fisica. Relazioni tra volume e dimensioni Esistono diverse relazioni interessanti tra il volume e le dimensioni di un parallelepipedo: Rapporto di similitudine: Se si moltiplicano tutte le dimensioni di un parallelepipedo per un fattore k, il volume aumenterà di un fattore $$k^{3}$$k3 $$V_{nuovo} = k^{3} \times V_{originale}$$Vnuovo=k3×Voriginale Conservazione del volume: Il volume rimane costante se si modifica una dimensione e si adatta proporzionalmente un'altra, mantenendo la terza costante. Per esempio: $$l_{1} \times w_{1} \times h = l_{2} \times w_{2} \times h$$l1×w1×h=l2×w2×h dove $$l_{1}$$l1, $$w_{1}$$w1 sono le dimensioni originali e $$l_{2}$$l2, $$w_{2}$$w2 sono le nuove dimensioni, con h costante. Relazione superficie-volume: Il rapporto tra l'area superficiale e il volume di un parallelepipedo diminuisce all'aumentare delle sue dimensioni. Questo principio ha importanti applicazioni in biologia e ingegneria. $$\frac{Area\;superficiale}{Volume} = \frac{2(lw + lh + wh)}{lwh}$$VolumeAreasuperficiale=lwh2(lw+lh+wh) Queste relazioni avanzate sono fondamentali per comprendere come le variazioni nelle dimensioni influenzano le proprietà geometriche del parallelepipedo e sono ampiamente utilizzate in vari campi scientifici e ingegneristici. Come Usare Gauth per Risolvere le Formule del Parallelepipedo Gauth, l'assistente AI per i compiti, è uno strumento eccellente per aiutarti a comprendere e risolvere problemi matematici complessi, incluse le formule del parallelepipedo. Ecco come utilizzarlo per questo scopo specifico: Passo 1: Accedi alla homepage di Gauth e inizia a utilizzare questo potente assistente AI per i compiti. Passo 2: Inserisci la tua domanda sulle formule del parallelepipedo nella casella di testo. Ad esempio, potresti digitare "Calcola il volume di un parallelepipedo con lati 3 cm, 4 cm e 5 cm". In alternativa, puoi caricare un'immagine del problema geometrico relativo al parallelepipedo. Basta trascinare e rilasciare l'immagine o caricarla direttamente. Passo 3: Gauth analizzerà rapidamente la tua domanda e fornirà una risposta dettagliata, includendo la formula corretta del parallelepipedo e i passaggi per risolverla. Otterrai non solo il risultato, ma anche una spiegazione approfondita su come applicare le formule del parallelepipedo, aiutandoti a comprendere meglio il concetto. Passo 4: Utilizza la calcolatrice AI integrata di Gauth per verificare i tuoi calcoli relativi alle formule del parallelepipedo. Questa funzione è particolarmente utile per controllare i risultati ottenuti manualmente. Con Gauth, padroneggiare le formule del parallelepipedo diventa un compito molto più semplice e interattivo! Applicazioni pratiche delle formule del parallelepipedo Utilizzo in architettura e ingegneria Le formule del parallelepipedo trovano ampia applicazione in architettura e ingegneria. Gli architetti le utilizzano per calcolare il volume degli spazi interni degli edifici, mentre gli ingegneri le impiegano per determinare la quantità di materiali necessari per la costruzione. Ad esempio: Calcolo del volume di una stanza: $$V = l \times w \times h$$V=l×w×h Determinazione della superficie da dipingere: $$A_{lat} = 2h(l + w)$$Alat=2h(l+w) Stima del peso di una struttura: $$Peso = V \times densità\;del\;materiale$$Peso=V×densita`delmateriale Queste formule sono essenziali per la progettazione efficiente e la gestione dei costi nei progetti edilizi. Calcoli per imballaggio e stoccaggio Nel settore della logistica e del trasporto, le formule del parallelepipedo sono fondamentali per ottimizzare l'imballaggio e lo stoccaggio delle merci. Alcuni esempi pratici includono: Calcolo dello spazio necessario in un magazzino: $$V_{totale} = \sum_{i=1}^{n} l_{i} \times w_{i} \times h_{i}$$Vtotale=i=1∑nli×wi×hi Determinazione del numero di scatole che possono essere impilate in un container: $$N = \frac{V_{container}}{V_{scatola}}$$N=VscatolaVcontainer Ottimizzazione del design delle confezioni per ridurre gli sprechi di materiale: $$A_{min} = 2(lw + lh + wh)$$Amin =2(lw+lh+wh) Questi calcoli aiutano a massimizzare l'efficienza dello spazio e a ridurre i costi di trasporto e stoccaggio. Esempi di problemi risolti Calcolo del volume Problema: Una scatola ha dimensioni di 30 cm di lunghezza, 20 cm di larghezza e 15 cm di altezza. Qual è il suo volume? Soluzione: Utilizziamo la formula del volume: $$V = l \times w \times h$$V = 30\;cm \times 20\;cm \times 15\;cm = 9000\;cm^{3} = 9\;litri$$V=30cm×20cm×15cm=9000cm3=9litri Calcolo dell'area superficiale Problema: Calcolare l'area superficiale di un parallelepipedo con lunghezza 5 m, larghezza 3 m e altezza 2 m. Soluzione: Usiamo la formula dell'area totale: $$A_{tot} = 2(lw + lh + wh)$$Atot=2(lw+lh+wh) $$A_{tot} = 2(5 \times 3 + 5 \times 2 + 3 \times 2) = 2(15 + 10 + 6) = 2 \times 31 = 62\;m^{2}$$Atot=2(5×3+5×2+3×2)=2(15+10+6)=2×31=62m2 Determinazione delle dimensioni Problema: Un contenitore a forma di parallelepipedo ha un volume di 240 $$m^{3}$$m3. Se la sua lunghezza è 10 m e la sua larghezza è 6 m, quale è la sua altezza? Soluzione: Usiamo la formula del volume riarrangiata per trovare l'altezza: $$h = \frac{V}{l \times w}$$h=l×wV $$h = \frac{240\;m^{3}}{10\;m \times 6\;m} = \frac{240}{60} = 4\;m$$h=10m×6m240m3=60240=4m Parallelepipedo nella vita quotidiana Oggetti comuni a forma di parallelepipedo Il parallelepipedo è una forma molto comune nella vita di tutti i giorni. Alcuni esempi includono: Scatole di cereali Libri e quaderni Frigoriferi e lavatrici Mattoni e blocchi da costruzione Contenitori per lo stoccaggio Valigie e borse da viaggio La prevalenza di questa forma è dovuta alla sua efficienza in termini di spazio e facilità di produzione. Importanza nel design e nella produzione Il parallelepipedo gioca un ruolo cruciale nel design industriale e nella produzione di massa per diversi motivi: Efficienza di spazio: La forma rettangolare permette un utilizzo ottimale dello spazio in magazzini e durante il trasporto. Facilità di produzione: Le linee rette e gli angoli regolari semplificano il processo di fabbricazione. Modularità: I parallelepipedi si impilano e si affiancano facilmente, facilitando lo stoccaggio e l'organizzazione. Personalizzazione: La forma semplice del parallelepipedo si presta facilmente a modifiche e personalizzazioni. Questi fattori contribuiscono a rendere il parallelepipedo una forma preferita in molti settori industriali, dal packaging all'arredamento. Strumenti per il calcolo delle formule del parallelepipedo Calcolatori online Esistono numerosi strumenti online che facilitano il calcolo rapido e preciso delle formule del parallelepipedo. Alcuni esempi includono: Calcolatori di volume: Inserendo le dimensioni, forniscono istantaneamente il volume del parallelepipedo. Calcolatori di area superficiale: Permettono di calcolare sia l'area totale che quella laterale. Convertitori di unità: Utili per passare da un'unità di misura all'altra (ad esempio, da metri cubi a litri) Calcolatori di diagonale: Calcolano la lunghezza della diagonale spaziale del parallelepipedo. Questi strumenti sono particolarmente utili per studenti, insegnanti e professionisti che necessitano di calcoli rapidi e precisi. Software di modellazione 3D I software di modellazione 3D offrono funzionalità avanzate per lavorare con parallelepipedi e altre forme geometriche. Alcuni esempi popolari includono: AutoCAD: Ampiamente utilizzato in architettura e ingegneria per la progettazione di edifici e componenti. SketchUp: Un software user-friendly che permette di creare facilmente modelli 3D di parallelepipedi e altre forme. Blender: Un potente strumento open-source per la modellazione 3D, utile per visualizzazioni complesse e animazioni. SolidWorks: Utilizzato principalmente nell'ingegneria meccanica per la progettazione di parti e assemblaggi. Questi software non solo permettono di creare e manipolare parallelepipedi, ma offrono anche funzioni per calcolare automaticamente volume, area superficiale e altre proprietà geometriche. Conclusioni e riepilogo delle formule principali In questo articolo, abbiamo esplorato in dettaglio il parallelepipedo, le sue proprietà geometriche e le formule associate. Ecco un riepilogo delle formule principali: Volume: $$V = l \times w \times h$$V=l×w×h Area totale: $$A_{tot} = 2(lw + lh + wh)$$Atot=2(lw+lh+wh) Area laterale: $$A_{lat} = 2h(l + w)$$Alat=2h(l+w) Diagonale: $$d = \sqrt{l^{2} + w^{2} + h^{2}}$$d=l2+w2+h2 Dove $$l$$l è la lunghezza, $$w$$w la larghezza, $$h$$h l'altezza e $$d$$d la diagonale. Abbiamo visto come queste formule si applicano in vari campi, dall'architettura alla logistica, e come influenzano il design e la produzione di oggetti quotidiani. L'importanza del parallelepipedo nella vita di tutti i giorni e nelle applicazioni industriali è evidente, e la comprensione delle sue proprietà geometriche è fondamentale in molti settori professionali. Gli strumenti moderni, come i calcolatori online e i software di modellazione 3D, hanno reso più accessibile e preciso il lavoro con i parallelepipedi, facilitando calcoli complessi e visualizzazioni tridimensionali. In conclusione, la padronanza delle formule del parallelepipedo e la comprensione delle sue proprietà geometriche sono competenze preziose, non solo in ambito accademico, ma anche in numerose applicazioni pratiche e professionali. Che si tratti di progettare un edificio, ottimizzare lo spazio di stoccaggio o semplicemente comprendere meglio il mondo che ci circonda, le conoscenze acquisite su questa forma geometrica fondamentale si rivelano invariabilmente utili e rilevanti. Il volume del parallelepipedo si calcola come V=Sb·h, ossia moltiplicando l'area di base per l'altezza. In un parallelepipedo qualsiasi la base è un parallelogramma, e si dice altezza la distanza tra il piano della base e il piano della faccia parallela ad essa.In genere nei problemi di Geometria Solida di Scuola Media e Scuole Superiori si ha a che fare con il parallelepipedo rettangolo, le cui facce sono sei rettangoli.Dunque, qui ci occuperemo solo del parallelepipedo rettangolo, la cui altezza coincide con l'altezza di ciascuno dei quattro rettangoli che corrispondono alle facce laterali.Di conseguenza il volume si calcola moltiplicando l'area del rettangolo di base per l'altezza del parallelepipedo. Volume parallelepipedo rettangolo = a·b·h.Indichiamo con le tre dimensioni, dove sono base e altezza del rettangolo di base e è l'altezza del parallelepipedo. Siano inoltre l'area della superficie di base e il volume.DatiFormulaVolume parallelepipedo rettangolo con dimensioniVolume parallelepipedo rettangolo con area di base e altezzaPer tutte le formule sul parallelepipedo rettangolo, dirette e inverse, vi rimandiamo alla lezione del link.Calcolo volume parallelepipedo rettangolo con area di base e altezzaSe sono note l'area del rettangolo di base e la misura dell'altezza, per calcolare il volume si moltiplica l'area di base per l'altezza.EsempioL'area di base di un parallelepipedo rettangolo è di 7 metri quadrati. Calcolarne il volume sapendo che la sua altezza misura 1,5 metri.Svolgimento:Calcolo volume parallelepipedo rettangolo con le tre dimensioniConoscendo le misure delle tre dimensioni del parallelepipedo, possiamo calcolare l'area di base come prodotto tra base e altezza del relativo rettangolo.Fatto ciò, si può calcolare il volume moltiplicando l'area di base per l'altezza:In alternativa si può determinare il volume in un solo passaggio, moltiplicando tra loro le misure delle tre dimensioni:EsempioDeterminare il volume di un parallelepipedo rettangolo le cui dimensioni misurano 8, 4 e 3 cm.Svolgimento:Calcolo volume parallelepipedo rettangolo con area della superficie totalePer trovare il volume nota l'area totale si deve necessariamente conoscere la misura di due dimensioni del parallelepipedo. In questo modo potremo risalire alla dimensione incognita invertendo la formula per l'area della superficie totale:EsempioL'area totale di un parallelepipedo rettangolo è di 54 cm2. Calcolare il volume sapendo che l'altezza del parallelepipedo misura 1,5 cm e che una delle dimensioni del rettangolo di base misura 3 cm.Svolgimento: sappiamo chePer calcolare il volume ci serve , ossia la misura dell'altra dimensione di base. Ricaviamola dalla formula per l'area della superficie totale:Invertiamo l'uguaglianza e dividiamo entrambi i membri per 2:Portiamo l'addendo che non contiene il termine a secondo membro:Raccogliamo a fattor comune :Arrivati a questo punto sostituiamo con 54 cm2, con 3 cm e con 1,5 cm.Per ricavare il valore di dobbiamo dividere entrambi i membri per 4,5 cm.Conoscendo le misure delle tre dimensioni del parallelepipedo, possiamo calcolare il volume:Calcolo volume parallelepipedo con area della superficie lateraleL'area laterale è il prodotto tra il perimetro del rettangolo di base e l'altezza del parallelepipedo:Per poter determinare il volume dalla superficie laterale il testo del problema deve fornirci qualche altro dato, come la misura di due dimensioni del parallelepipedo oppure una qualche relazione tra di esse.EsempioBase e altezza del rettangolo di base misurano rispettivamente 2 e 6 metri. Calcolare il volume del parallelepipedo sapendo che l'area della superficie laterale è di 40 metri quadrati.Svolgimento: calcoliamo il perimetro del rettangolo di base moltiplicando per 2 la somma delle misure di base e altezza:Invertendo la formula dell'area laterale, possiamo determinare la misura dell'altezza del parallelepipedo:Abbiamo tutto quello che ci occorre per calcolare il volume:ApprofondimentiQualche spunto di approfondimenti per concludere in bellezza:formulario sul parallelepipedo rettangolo;scheda di esercizi svolti sul parallelepipedo rettangolo. Il volume di un solido è la misura dello spazio occupato da un oggetto. Nel Sistema Internazionale le unità di misura utilizzate per il calcolare il volume sono il centimetro cubo (cm3) e il metro cubo (m3); mentre nel sistema anglosassone si usano i pollici cubi (in3) e i piedi cubi (ft3). In questo articolo troverai tutte le formule necessarie per calcolare il volume dei solidi più ricorrenti nei problemi di geometria: cubo, parallelepipedo rettangolo, cilindro, piramide, cono e sfera. Il cubo è una figura geometrica tridimensionale caratterizzata da sei facce quadrate aventi lati tutti uguali. Un esempio di cubo può essere un dado da gioco. Anche i blocchi di legno con le lettere che i bambini usano per giocare rappresentano dei cubi. Per calcolare il volume di un cubo basta eseguire questa moltiplicazione: lunghezza x larghezza x altezza. Dato che i lati di un cubo sono tutti uguali, la formula per calcolare il volume si può semplificare così: V = l3 Dove V sta per volume, mentre l rappresenta la misura di un lato del cubo. Per trovare l3 basta moltiplicare il lato per tre volte: l3 = l x l x l Dato un cubo con un lato misura 6 cm, calcolare il volume del cubo. Il calcolo da fare sarà il seguente: l = 6 V = 6 3 In altre parole per trovare il volume del cubo preso in esame moltiplichiamo la misura del suo lato per tre volte, esprimendo il risultato ottenuto con un'unità di misura cubica. Nel nostro esempio la misura del lato del cubo misura 6 cm, quindi il risultato finale dovrà essere espresso in centimetri cubi (cm3): V = 6 x 6 x 6 = 216 cm3 Se avessimo utilizzato un'unità di misura diversa come ad esempio il metro cubo, allora il risultato ottenuto sarebbe stato espresso in metri cubi (m3). Il parallelepipedo rettangolo è una figura geometrica tridimensionale, detta anche prisma rettangolare, che presenta sei facce rettangolari. Un esempio di questo solido può essere una scatola che ha i lati a forma di rettangolo. Per calcolare il volume di un parallelepipedo rettangolo occorre eseguire la seguente formula: V = l x p x h Dove V sta per volume, l per lunghezza, p per profondità e h per altezza. La lunghezza del solido è rappresentata dalla faccia parallela al suolo. La profondità è invece il lato più corto della faccia su cui si poggia il parallelepipedo. Mentre l'altezza costituisce la distanza fra la faccia su cui si poggia il solido e quella superiore. Ipotizziamo di avere un parallelepipedo la cui lunghezza è di 6 cm, la profondità è di 5 cm, mentre l'altezza è di 8 cm. Data la formula V = l x p x h, il calcolo da fare sarà il seguente: V = 6 x 5 x 8 = 240 cm3 Dal momento che le dimensioni del parallelepipedo in esame sono espresse in cm, il risultato sarà espresso in centimetri cubi cm3 Il cilindro è una figura geometrica formata da due basi circolari uguali fra loro, collegate da una faccia curva. Le batterie sono un esempio di cilindro. Per calcolare il volume del cilindro bisogna eseguire questa formula: V = πr 2 h Dove V sta per volume, π è la costante Pi greco (che vale 3,14), r è il raggio della base circolare e h l'altezza del cilindro. In altre parole basta moltiplicare l'altezza del solido per l'area della base circolare. Immaginiamo di avere un cilindro avente una base con diametro di 18 cm, mentre la sua altezza misura 40 cm. Per calcolare il volume del cubo, data la formula V = πr 2 h , devi prima calcolare l'area della base circolare πr 2. Se conosciamo il valore del diametro, possiamo ottenere il raggio, dividendo il diametro per due: r = d : 2 r = 18 : 2 = 9 cm A questo punto possiamo calcolare l'area della base del cilindro: A = π92 A = 3,14 x 9 x 9 = 254,34 cm2 Una volta che conosci l'area della base del cilindro, puoi calcolare il volume moltiplicando il valore dell'area della base per l'altezza: V = 254,34 x 40 = 10.173,6 cm3 La piramide regolare è un solido che ha per base un poligono regolare (ovvero con tutti i lati e gli angoli uguali), e le facce laterali che convergono in un punto detto vertice. Nei problemi di geometria spesso troviamo una piramide a base quadrata. La formula per calcolare il volume di una piramide regolare è: V = 1/3 bh Dove b rappresenta l'area della base della piramide e h l'altezza della piramide, ovvero la distanza che intercorre fra la base e il vertice. Ipotizziamo di avere una piramide a base quadrata con lati da 8 cm, e un'altezza pari a 12 cm. Per trovare il volume della piramide, data la formula V = 1/3 bh, prima devi calcolare l'area della base (b). Essendo la base della piramide un quadrato, per trovare il valore dell'area devi moltiplicare la lunghezza del lato per se stessa: l = 8 A = l x l A = 8 x 8 = 64 A questo punto per calcolare il volume della piramide, ora che conosci l'area della base, non ti resta che moltiplicare questo valore per l'altezza e dividere il risultato per tre. V = 1/3 (64 x 12) = 768 V = 1/3 (768) V = 768 : 3 = 256 cm3 Il cono rappresenta un solido tridimensionale costituito da una base circolare e un singolo vertice (la punta del cono). Si ottiene facendo ruotare un triangolo rettangolo attorno a uno dei suoi cateti. La formula per calcolare il volume di un cono è: V = 1/3 πr2h Dove r rappresenta il raggio della base circolare, h l'altezza e π la costante Pi greco che può essere approssimata a 3,14. La parte della formula πr2, come abbiamo già visto, rappresenta l'area della base circolare del cono. Immaginiamo di avere un cono con un'altezza pari a 10 cm, e una base circolare che presenta un raggio di 3 cm. Per calcolare il volume del cono, data la formula V = 1/3 πr2h, devi innanzitutto calcolare l'area della base circolare: A = πr2 A = π (3 X 3) A = 3,14 x 9 A = 28,26 cm2 In seguito devi moltiplicare il risultato ottenuto per l'altezza del cono (10 cm) e infine dividere tutto per tre: V = 1/3 (28,26 x 10) V = 282,6 : 3 = 94,2 cm3 Una sfera è un oggetto rotondo tridimensionale, dove ogni punto della superficie è equidistante dal centro. Un esempio di sfera è rappresentato da una palla da calcio. La formula per calcolare il volume della sfera è: V = 4/3 πr3 Dove r sta per il raggio della sfera e π è la costante Pi greco, che vale 3,14. Data una sfera con un raggio di 6 cm. Calcolare il volume. Per calcolare il volume della sfera dobbiamo eseguire la formula sopra citata: V = 4/3 π (6)3 V = 4/3 π (6 x 6 x 6) V = 4/3 π (216) Poi moltiplica il risultato ottenuto per 3,14 (ovvero il valore della costante π Pi greco): V = 4/3 (3,14 x 216) V = 4/3 (678,24) Infine moltiplica 678,24 per quattro e poi dividilo per tre, otterrai così il volume in centimetri cubi: V = (678, 24 x 4) : 3 = 904,32 cm3 Se non conosci il valore del raggio, ma sai quanto misura il diametro della circonferenza ricordati che per trovare il raggio bisogna dividere il diametro per due: r = D/2 Questo tipo di calcolo è utile se vuoi: calcolare la capienza di un recipiente o di una scatolacalcolare quanti metri cubi d'acqua può contenere una cisternacalcolare la densità di un oggettocalcolare cubatura di un edificio In questo breve articolo vedremo come si calcola il volume del parallelepipedo. Ricordiam

65.8 miles (105.9 kilometers), making it a sub-orbital spaceflight by recognized international standards. July 26 An earthquake in Skopje, Yugoslavia (present-day North Macedonia) leaves 1,800 dead. NASA launches Syncom 2, the world's first geostationary (synchronous) satellite. July 30 – The Soviet newspaper Izvestia reports that British diplomat and double agent Kim Philby has been given asylum in Moscow. Main article: August 1963 August 28: March on Washington for Jobs and Freedom August 5 – The United States, United Kingdom and Soviet Union sign the Partial Nuclear Test Ban Treaty.[15] August 8 – The Great Train Robbery takes place in Buckinghamshire, England. August 14 – A huge and devastating forest fire hits the region around Paraná State, Brazil. According to government documents, two million hectares (4.94 million acres) are lost to burning and 110 persons perished.[16] August 15 – Trois Glorieuses: President Fulbert Youlou is overthrown in the Republic of Congo after a three-day uprising in the capital, Brazzaville. August 21 – Xá Lợi Pagoda raids: The Army of the Republic of Vietnam Special Forces loyal to Ngô Đình Nhu, brother of President Ngô Đình Diệm, vandalise Buddhist pagodas across South Vietnam, arresting thousands and leaving an estimated hundreds dead. In the wake of the raids, the Kennedy administration by Cable 243 orders the United States Embassy, Saigon to explore alternative leadership in the country, opening the way towards a coup against Diệm. August 22 – American test pilot Joe Walker again achieves a sub-orbital spaceflight according to international standards, this time by piloting the X-15 to an altitude of 67.0 miles (107.8 kilometers). August 24 – First games played in the Bundesliga, the primary professional Association football league in West Germany, replacing the Oberliga.[17] August 28 – Martin Luther King Jr. delivers his "I Have a Dream" speech on the steps of the Lincoln Memorial to an audience of at least 250,000, during the March on Washington for Jobs and Freedom. It is, at that point, the single largest protest in American history. August 30 – The Moscow–Washington hotline (a direct teleprinter link) is inaugurated by U.S. President John F. Kennedy.[18] Main article: September 1963 September 1 – Establishment of language areas and facilities in Belgium comes into effect. This will become the foundation for further state reform in Belgium. September 6 – The Centre for International Intellectual Property Studies (CEIPI) is founded. September 10 – Sicilian Mafia boss Bernardo Provenzano is indicted for murder (he is captured 43 years later, on April 11, 2006). September 15 – American civil rights movement: The 16th Street Baptist Church bombing, in Birmingham, Alabama, kills 4 and injures 22. September 16 – Malaysia is formed through the merging of the Federation of Malaya and the British crown colony of Singapore, North Borneo (renamed Sabah) and Sarawak. September 18 – Rioters burn down the British Embassy in Jakarta, to protest the formation of Malaysia. September 19 – Iota Phi Theta fraternity is founded at Morgan State College in Baltimore, Maryland September 23 – King Fahd University of Petroleum and Minerals is established by a Saudi Royal Decree as the College of Petroleum and Minerals. September 24 – The United States Senate ratifies the Partial Nuclear Test Ban Treaty. September 25 – In the Dominican Republic, Juan Bosch is deposed by a coup d'état led by the military with civilian support. September 29 – The second period of the Second Vatican Council in Rome opens. Main article: October 1963 October 1 – U.S. President John F. Kennedy toasts Emperor Haile Selassie at a luncheon in Rockville, Maryland. October 2 Nigeria becomes a republic; The 1st Republican Constitution is established. The Presidential Commission on the Status of Women in the United States issues its final reports to President Kennedy. October 3 – 1963 Honduran coup d'état: A violent coup in Honduras pre-empts the October 13 election, ends a period of reform under President Ramón Villeda Morales and begins two decades of military rule under General Oswaldo López Arellano. October 4 – Hurricane Flora, one of the worst Atlantic storms in history, hits Hispaniola and Cuba, killing nearly 7,000 people. October 7 – Buddhist crisis: Amid worsening relations, outspoken South Vietnamese First Lady Madame Ngo Dinh Nhu arrives in the US for a speaking tour, continuing a flurry of attacks on the Kennedy administration.[19] October 9 – In northeast Italy, over 2,000 people are killed when a large landslide behind the Vajont Dam causes a giant wave of water to overtop it. October 10 – Partial Nuclear Test Ban Treaty, signed on August 5, takes effect.[15] October 14 – A revolution starts in Radfan, South Yemen, against British colonial rule. October 16 – Ludwig Erhard replaces Konrad Adenauer as Chancellor of West Germany.[20] October 19 – Alec Douglas-Home succeeds Harold Macmillan as Prime Minister of the United Kingdom.[21] October 24 – Fire at the Soviet Union's Baikonur Cosmodrome in an R-9 Desna underground missile silo; seven people are killed.[22] October 30 – The car manufacturing firm Lamborghini is founded in Italy. October 31 – 1963 Indiana State Fairgrounds Coliseum gas explosion: 81 die in a gas explosion during a Holiday on Ice show at the Indiana State Fairgrounds Coliseum in Indianapolis, United States. Main article: November 1963 November 1 – Arecibo Observatory, a radio telescope, officially begins operation in Puerto Rico. November 2 – 1963 South Vietnamese coup: Arrest and assassination of Ngo Dinh Diem, the South Vietnamese President. November 6 – 1963 South Vietnamese coup: Coup leader General Dương Văn Minh takes over as leader of South Vietnam. November 7 11 German miners are rescued from a collapsed mine after 14 days in what becomes known as the "Wunder von Lengede" ("miracle of Lengede"). The star-studded movie It's a Mad, Mad, Mad, Mad World premieres in Los Angeles. November 8 – Finnair aircraft OH-LCA crashes before landing at Mariehamn Airport on Åland. November 9 – Two disasters in Japan: Miike coal mine explosion: A coal mine explosion kills 458 and sends 839 carbon monoxide poisoning victims to the hospital. Tsurumi rail accident: A triple train disaster in Yokohama kills 161. November 10 – Malcolm X makes an historic speech in Detroit, Michigan ("Message to the Grass Roots"). November 14 – A volcanic eruption under the sea near Iceland creates a new island, Surtsey. November 22: Assassination of John F. Kennedy November 22 – Assassination of John F. Kennedy: In a motorcade in Dallas, Texas, U.S. President John F. Kennedy is fatally shot by Lee Harvey Oswald, and Governor of Texas John Connally is seriously wounded at 12:30 CST. Upon Kennedy's death, Vice President Lyndon B. Johnson becomes the 36th president of the United States. A few hours later, President Johnson is sworn in aboard Air Force One, as Kennedy's body is flown back to Washington, D.C. Stores and businesses shut down for the next four days, in tribute. November 23 The Golden Age Nursing Home fire kills 63 elderly people near Fitchville, Ohio, United States. The long-running sci-fi television series Doctor Who premieres on BBC TV in the United Kingdom. November 24 Lee Harvey Oswald, assassin of John F. Kennedy, is shot dead by Jack Ruby in Dallas, an event seen on live national television. Vietnam War: New U.S. President Lyndon B. Johnson confirms that the United States intends to continue supporting South Vietnam militarily and economically. November 25 – State funeral of John F. Kennedy: President Kennedy is buried at Arlington National Cemetery. Schools around the nation cancel classes that day; millions watch the funeral on live international television. Lee Harvey Oswald's funeral takes place on the same day.[23] November 29 U.S. President Lyndon B. Johnson establishes the Warren Commission to investigate the assassination of John F. Kennedy. Trans-Canada Air Lines Flight 831, a Douglas DC-8 crashes into a wooded hillside after taking-off from Dorval International Airport near Montreal, killing all 118 on board, the worst air disaster for many years in Canada's history. Foundation stone for Mirzapur Cadet College is laid in East Pakistan (present-day Bangladesh). November 30 – 1963 Australian federal election: Robert Menzies' Liberal/Country Coalition Government is re-elected with an increased majority to an unprecedented eighth term in office, defeating the Labor Party led by Arthur Calwell. (This would be the final lower house election won by Menzies, who would retire from office during the term as the longest-serving Prime Minister in Australian history; he would be replaced by Harold Holt.) Main article: December 1963 December 3 – The Warren Commission begins its investigation into the assassination of US President John F. Kennedy. December 4 – The second period of the Second Vatican Council closes. December 5 – The Seliger Forschungs-und-Entwicklungsgesellschaft mbH demonstrates rockets for military use to military representatives of non-NATO-countries near Cuxhaven. Although these rockets land via parachute at the end of their flight and no allied laws are violated, the Soviet Union protests this action. December 7 – The first instant replay system to use videotape instead of film is used by Tony Verna, a CBS-TV director, during a live televised sporting event, the Army–Navy Game of college football played in Philadelphia, United States. December 8 – A lightning strike causes the crash of Pan Am Flight 214 near Elkton, Maryland, United States, killing 81 people. December 10 Zanzibar gains independence from the United Kingdom, as a constitutional monarchy under Sultan Jamshid bin Abdullah. Chuck Yeager narrowly escapes death while testing an NF-104A rocket-augmented aerospace trainer when his aircraft goes out of control at 108,700 feet (nearly 21 miles up) and crashes. He parachutes to safety at 8,500 feet after vainly battling to gain control of the powerless, rapidly falling craft. In this incident he becomes the first pilot to make an emergency ejection in the full pressure suit needed for high altitude flights. December 12 – Kenya gains independence from the United Kingdom, with Jomo Kenyatta as prime minister. December 20 – The Frankfurt Auschwitz Trials begin. December 21 – Cyprus Emergency: Inter-communal fighting erupts between Greek and Turkish Cypriots. December 22 – The cruise ship TSMS Lakonia burns 180 miles (290 km) north of Madeira, with the loss of 128 lives. December 25 – İsmet İnönü of the Republican People's Party (CHP) forms the new government of Turkey (28th government, coalition partners; independents, İnönü has served ten times as a prime minister, this is his last government). December 31 – Federation of Rhodesia and Nyasaland dissolves. David H. Frisch and J.H. Smith prove that the radioactive decay of mesons is slowed by their motion (see Einstein's special relativity and general relativity). The TAT-3 transatlantic communications cable goes into operation. Ivan Sutherland writes the revolutionary Sketchpad program and runs it on the Lincoln TX-2 computer at Massachusetts Institute of Technology. Slavery in Dubai is abolished. Construction of Moscow's Ostankino Tower begins. The IEEE Computer Society is founded. The Urdu keyboard is standardised by the Central Language Board in Pakistan. Harvey Ball invents the ubiquitous smiley face symbol. The classic Porsche 911 is first produced. The Reformed Druids of North America is founded. Hergé's The Castafiore Emerald is published. Marvel releases their Superhero assembly team The Avengers. James May José Mourinho January 4 Dave Foley, Canadian actor and comedian Till Lindemann, German singer (Rammstein)[24] January 5 – Jiang Wen, Chinese actor, film director and screenwriter January 6 – Paul Kipkoech, Kenyan long-distance runner (d. 1995)[25] January 10 – Kira Ivanova, Soviet Russian figure skater (d. 2001) January 11 Tracy Caulkins, American swimmer Petra Schneider, East German swimmer January 14 – Steven Soderbergh, American film director[26] January 15 – Bruce Schneier, American cryptographer, cyber security expert and writer[27] January 16 Simon Johnson, English-born economist[28] James May, English motoring journalist and television show host[29] January 17 – Kai Hansen, German power metal guitarist and singer January 18 – Efraín Alegre, Paraguayan politician January 21 – Hakeem Olajuwon, Nigerian basketball player[30] January 23 – Gail O'Grady, American actress[31] January 25 – Fernando Haddad, Brazilian academic and politician January 26 José Mourinho, Portuguese football manager[32] Andrew Ridgeley, English pop musician[33] Michael Jordan Larry the Cable Guy Seal William Baldwin February 2 – Eva Cassidy, American vocalist (d. 1996) February 3 – Gretel Killeen, Australian journalist February 4 – Pirmin Zurbriggen, Swiss alpine skier February 6 David Capel, English cricketer (d. 2020) Cláudia Ohana, Brazilian actress and singer February 9 – Brian Greene, American physicist. February 12 – John Michael Higgins, American actor and voice actor[34] February 14 Enrico Colantoni, Canadian actor and director Alex Perry, Australian fashion designer February 15 – Shoucheng Zhang, Chinese-American physicist (d. 2018) February 16 – Claudio Amendola, Italian actor, television presenter and director February 17 Jinggoy Estrada, Filipino politician, actor and film producer Michael Jordan, American basketball player[35] Larry the Cable Guy, American actor and comedian February 18 – Rob Andrew, English rugby union player February 19 – Seal, English soul singer February 20 Charles Barkley, American basketball player[36] Jon Christensen (politician), American politician and member of the US House of Representatives from 1995 to 1999 February 21 – William Baldwin, American actor, producer and writer[37] February 22 – Vijay Singh, Fijian golfer February 25 – Merab Katsitadze, retired Georgian professional football player February 27 – Virginie Boutaud, Brazilian singer and actress (Metrô, Virginie & Fruto Proibido) Thomas Anders Anthony Albanese Rick Rubin Quentin Tarantino March 1 Thomas Anders, German singer Aydan Şener, Turkish actress, model and beauty pageant[38] March 2 Anthony Albanese, 31st Prime Minister of Australia Tuff Hedeman, American PRCA World Champion Bull Rider[39] March 3 – Martín Fiz, Spanish long-distance runner March 4 – Jason Newsted, American bassist March 8 – Juan Gilberto Funes, Argentine footballer (d. 1992) March 9 – Jean-Marc Vallée, Canadian filmmaker and screenwriter (d. 2021) March 10 Rick Rubin, American music producer Anna Maria Corazza Bildt, Italian politician March 11 Azem Hajdari, Albanian student leader (d. 1998) Alex Kingston, English actress David LaChapelle, American photographer[40] March 12 Farahnaz Pahlavi, Iranian princess Jake Weber, British actor Joaquim Cruz, Brazilian runner March 13 – Fito Páez, Argentine rock musician March 14 – Bruce Reid, Australian cricketer March 15 – Bret Michaels, American rock singer (Poison) March 16 – Kevin Smith, New Zealand actor (d. 2002) March 17 – Alex Fong, Hong Kong actor March 18 – Vanessa Williams, American beauty queen, actress and singer March 20 Kathy Ireland, American actress and model David Thewlis, British actor March 21 – Ronald Koeman, Dutch football player and manager March 22 Marty Natalegawa, Indonesian diplomat Ana Fidelia Quirot, Cuban middle-distance runner[41] Martín Vizcarra, Peruvian engineer and politician, 67th President of Peru March 23 – Jose Miguel Gonzalez Martin del Campo, Spanish football player March 25 – Auxillia Mnangagwa, Zimbabwean politician and First Lady of Zimbabwe March 27 Dave Koz, American jazz musician[42] Quentin Tarantino, American actor, director, writer and producer Xuxa, Brazilian television personality March 28 – Bernice King, American activist, lawyer and minister March 30 – Panagiotis Tsalouchidis, Greek footballer March 31 – Stephen Tataw, Cameroonian footballer (d. 2020) Graham Norton Garry Kasparov Eric McCormack Conan O'Brien Jet Li April 3 – Sarah Woodward, English actress April 4 Siraj Raisani, Pakistani politician (d. 2018) Dale Hawerchuk, Canadian ice hockey player (d. 2020) Graham Norton, Irish comedian and talk show host Frank Yallop, Canadian soccer player and coach April 6 – Rafael Correa, President of Ecuador April 8 – Dean Norris, American actor April 9 Marc Jacobs, American fashion designer Erdal Tosun, Turkish actor (d. 2016) April 10 Jean-Luc Bourgeaux, French politician Angela Hohmann, German politician Doris Leuthard, Swiss politician and lawyer April 11 – Mavis Agbandje-McKenna, Nigerian-born British biophysicist and virologist (d. 2021) April 13 – Garry Kasparov, Russian chess player[43] April 15 Beata Szydło, Prime Minister of Poland[44] Diosdado Cabello, Venezuelan politician April 16 – Jimmy Osmond, American pop singer[45] April 18 Universo 2000, Mexican professional wrestler (d. 2018) Mike Mangini, American drummer Eric McCormack, Canadian actor Conan O'Brien, American television entertainer and talk show host[46] April 21 – Roy Dupuis, Canadian actor April 22 – Blanca Fernández Ochoa, Spanish ski racer (d. 2019) April 23 – Mohammad Ali Ramazani Dastak, Iranian politician (d. 2020) April 24 – Tõnu Trubetsky, Estonian punk rock musician April 26 – Jet Li, Chinese martial artist and actor[47] April 27– Russell T Davies, Welsh television producer and writer[48] April 28 – Jim Aldred, Canadian ice hockey coach and player[49] April 29 – Mike Babcock, Canadian ice hockey coach April 30 – Michael Waltrip, American race car driver and sportscaster Natasha Richardson Mike Myers Viktor Orbán May 8 – Anthony Field, Australian singer, musician and actor (The Wiggles) May 9 – Gary Daniels, British martial artist and actor May 10 Rich Moore, American film and television animation director, screenwriter and voice actor Lisa Nowak, American naval flight officer and NASA astronaut May 11 – Natasha Richardson, British-American actress (d. 2009) May 16 – Mercedes Echerer, Austrian actress and politician May 21 – Kevin Shields, Irish-American singer (My Bloody Valentine) May 24 Michael Chabon, American fiction writer Joe Dumars, American basketball player[50] May 25 Mike Myers, Canadian actor and comedian Eha Rünne, Estonian shot putter and discus thrower May 26 Clive Cowdery, English insurance entrepreneur Musetta Vander, South African actress Phil Pavlov, American politician and member of the Michigan Legislature from 2005 to 2018 May 29 – Débora Bloch, Brazilian actress May 31 – Viktor Orbán, Prime Minister of Hungary[51] Bernard Cazeneuve Jason Isaacs Johnny Depp Anne-Sophie Mutter Helen Hunt George Michael June 2 – Bernard Cazeneuve, Prime Minister of France June 3 Alessandra Karpoff, Italian voice actress Andrée Taurinya, French politician June 4 – Sean Fitzpatrick, New Zealand rugby union player June 5 – Joe Rudán, Hungarian heavy metal singer June 6 – Jason Isaacs, British actor[52] June 9 – Johnny Depp, American actor and film director[53] June 10 – Jeanne Tripplehorn, American actress June 12 Warwick Capper, Australian rules footballer T. B. Joshua, Nigerian Christian leader (d. 2021)[54] June 13 – Bettina Bunge, German tennis player June 14 – Rambo Amadeus, Montenegrin singer-songwriter June 15 Helen Hunt, American actress Lourdes Valera, Venezuelan actress June 17 – Greg Kinnear, American actor June 18 – Rumen Radev, President of Bulgaria June 19 – Laura Ingraham, American television host[55] June 21 Tiger Huang, Taiwanese popular singer Jan Pinkava, Czech director and writer June 22 Randy Couture, American mixed martial arts fighter and actor Hokutoumi Nobuyoshi, Japanese sumo wrestler John Tenta, Canadian wrestler (d. 2006) June 23 Marianne Berglund, Swedish road racing cyclist Shin Ji-ho, South Korean politician Liu Cixin, Chinese science fiction writer[56] Márcio França, Brazilian lawyer and politician Colin Montgomerie, Scottish golfer June 24 – Sükhbaataryn Batbold, Mongolian politician June 25 Yann Martel, Canadian novelist[57] George Michael, British singer-songwriter (d. 2016)[58] June 26 Mikhail Khodorkovsky, Russian businessman, activist and oligarch Farukh Ruzimatov, Russian ballet dancer June 28 – Wisit Sasanatieng, Thai film director and screenwriter June 29 Anne-Sophie Mutter, German violinist Rupert Graves, English actor Judith Hoag, American actress June 30 Vladimir Vermezović, Serbian football player and coach Yngwie Malmsteen, Swedish guitarist[59] Brigitte Nielsen Phoebe Cates Letsie III of Lesotho Matti Nykänen Martín Torrijos Lisa Kudrow July 1 Naser Khader, Danish-Syrian politician Igor Zhelezovski, Belarusian speed skater Zhang Zhicheng, Chinese fencer Roddy Bottum, American musician, keyboardist for the band Faith No More July 2 – Faiq Al Sheikh Ali, Iraqi lawyer and politician July 3 – Zainudin Nordin, Singaporean politician July 4 Henri Leconte, French tennis player R.S. Thanenthiran, Malaysian politician and businessman July 5 Edie Falco, American actress Zbigniew Hoffmann, Polish politician July 6 – Sorin Matei, Romanian high jumper July 7 Vonda Shepard, American pop/rock singer-songwriter and actress Fermín Alvarado Arroyo, Mexican politician Janni Larsen, Danish female darts player Rakeysh Omprakash Mehra, Indian filmmaker and screenwriter July 8 Michael Cuesta, American film and television director Luis de Jesús Rodríguez, Dominican attorney, businessman and entrepreneur Dmitry Pevtsov, Russian actor July 10 Fatemeh Goudarzi, Iranian actress Ian Lougher, British motorcycle racer July 11 Al MacInnis, Canadian ice hockey player Manuel Marrero Cruz, Cuban politician; Prime Minister of Cuba Lisa Rinna, American actress July 12 Bertus Servaas, Polish entrepreneur Aleksandr Domogarov, Russian actor Andrés Roemer, Mexican diplomat July 13 Kenny Johnson, American actor, producer and model[60] Spud Webb, American basketball player July 14 – Wouter Bos, Dutch politician July 15 – Brigitte Nielsen, Danish actress July 16 Phoebe Cates, American actress Mikael Pernfors, Swedish tennis player Srečko Katanec, Slovenian football manager and player July 17 Suha Arafat, widow of Yasser Arafat King Letsie III of Lesotho Matti Nykänen, Finnish ski jumper (d. 2019) July 18 – Martín Torrijos, President of Panama July 19 – Sándor Wladár, Hungarian swimmer July 20 Alexander Zhulin, Russian ice dancing coach and competitor Gbenga Aluko, Nigerian politician Roy Cheung, Hong Kong actor July 21 – Giant Silva, Brazilian national basketball player, mixed martial artist and professional wrestler July 22 Joanna Going, American actress Emilio Butragueño, Spanish football player July 23 – Slobodan Živojinović, Serbian tennis player[61] July 24 – Karl Malone, American professional basketball player[62] July 27 – Donnie Yen, Hong Kong actor and martial artist July 28 – Beverley Craven, British singer-songwriter July 29 Jim Beglin, Irish football commentator Alexandra Paul, American actress, activist and health coach, previously model July 30 Lisa Kudrow, American actress[63] Antoni Martí, prime minister of Andorra (d. 2023) Chris Mullin, American basketball player, coach and executive Gisèle Meygret, French fencer (d. 1999) Mandakini, Indian Bollywood actress July 31 Fatboy Slim, English DJ, musician and record producer Martin H. Wiggers, German economist, editor, author and businessman James Hetfield Whitney Houston Sridevi Emmanuelle Béart Glória Pires Mohammed VI of Morocco Hideo Kojima Miro Cerar August 1 Coolio, American rapper (d. 2022) Demián Bichir, Mexican-American actor John Carroll Lynch, American actor and film director[64] August 3 Tasmin Archer, English singer James Hetfield, American heavy metal guitarist (Metallica)[65] August 5 Mark Strong, English actor Doris Schröder-Köpf, German journalist August 6 – Kevin Mitnick, American computer hacker (d. 2023)[66] August 7 – Harold Perrineau, American actor August 9 – Whitney Houston, American singer (d. 2012)[67] August 13 Sridevi, Indian actress (d. 2018)[68] Édouard Michelin, French businessman (d. 2006) Valerie Plame, American writer and spy novelist August 14 – Emmanuelle Béart, French actress[69] August 15 Alejandro González Iñárritu, Mexican film director, producer and screenwriter Valery Levaneuski, entrepreneur, politician and political prisoner August 16 – Christine Cavanaugh, American actress and voice actress (d. 2014) August 18 – Heino Ferch, German actor August 19 Marcos Palmeira, Brazilian actor John Stamos, American actor[70] Joey Tempest, Swedish singer (Europe) August 21 King Mohammed VI of Morocco August 22 – Tori Amos, American singer[71] August 23 Glória Pires, Brazilian actress Hans-Henning Fastrich, German field hockey player Laura Flores, Mexican actress, hostess and singer Park Chan-wook, South Korean film director and screenwriter August 24 – Hideo Kojima, Japanese director, screenwriter, video game designer and video game producer August 25 – Miro Cerar, 10th Prime Minister of Slovenia August 26 – Liu Huan, Chinese singer August 30 Michael Chiklis, American actor Phil Mills, Welsh racing driver August 31 – Todd Carty, British-Irish actor Geert Wilders John Powell September 6 Betsy Russell, American actress Geert Wilders, Dutch politician and critic of Islam September 8 – Li Ning, Chinese gymnast September 9 Markus Wasmeier, German alpine-skier Chris Coons, US Senator September 10 Randy Johnson, American baseball player Gabriel Tiacoh, Ivorian sprinter (d. 1992) September 11 – Gabriela Goldsmith, Mexican actress September 12 – Michael McElhatton, Irish actor and writer September 14 – Robert Herjavec, Canadian businessman, investor and television personality September 16 Andréa Beltrão, Brazilian actress Richard Marx, American pop/rock singer[72] September 17 – Masahiro Chono, Japanese professional wrestler September 18 Christopher Heyerdahl, Canadian actor John Powell, English-American composer, conductor, pianist and record producer Dan Povenmire, American animator, producer and voice actor[73] September 19 Jarvis Cocker, English rock musician (Pulp) David Seaman, English football goalkeeper September 21 Cecil Fielder, American baseball player Angus Macfadyen, Scottish actor Mamoru Samuragochi, Japanese impostor September 23 – Michiru Yamane, Japanese composer September 25 – Tate Donovan, American actor and director September 29 Dave Andreychuk, Canadian hockey player Les Claypool, American bassist (Primus) Elisabeth Shue Tom Cavanagh Farin Urlaub Lauren Holly Johnny Marr Rob Schneider Dunga October 1 Mark McGwire, American baseball player[74] Iriana Joko Widodo, 7th First Lady of Indonesia, wife of Joko Widodo October 2 – Maria Ressa, Filipina American campaigning journalist, Nobel Prize laureate October 4 – Marcelo Buquet, Uruguayan-Mexican actor, previously model October 5 –Dame Laura Davies, English golfer October 6 – Elisabeth Shue, American actress October 10 Anita Mui, Hong Kong singer (d. 2003)[75] Daniel Pearl, American journalist (d. 2002) Jolanda de Rover, Dutch swimmer Vegard Ulvang, Norwegian cross-country skier[76] October 11 – Ronny Rosenthal, Israeli footballer[77] October 12 – Satoshi Kon, Japanese anime director (d. 2010)[78] October 13 – Ha Seung Moo, Korean poet and theologian October 14 – Alan McDonald, Northern Irish footballer October 19 Elsa Castillo, Venezuelan teacher and trade unionist[79] Prince Laurent of Belgium[80] Sinitta, Anglo-American singer October 20 Domingos Simões Pereira, 16th Prime Minister of Guinea-Bissau Julie Payette, Canadian astronaut and Governor General of Canada October 21 – Marisa Orth, Brazilian actress, singer and TV host October 22 – Brian Boitano, American figure skater October 23 Gordon Korman, Canadian-American children's and young adult author Wilson Yip, Hong Kong actor and director October 25 – John Levén, Swedish bassist (Europe) October 26 Tom Cavanagh, Canadian actor and director[81] Natalie Merchant, American singer-songwriter[82] October 27 Sergey Smiryagin, Russian freestyle swimmer (d. 2020) Feyyaz Uçar, Turkish footballer Farin Urlaub, German singer, band Die Ärzte[83] Marla Maples, American actress and television personality[84] October 28 – Lauren Holly, American actress October 31 Dunga, Brazilian footballer Johnny Marr, English alternative rock musician Dermot Mulroney, American actor Rob Schneider, American actor, comedian and film director Gabby Concepcion Ming-Na Wen November 1 Rick Allen, British rock drummer (Def Leppard) Mark Hughes, Welsh football player & manager Katja Riemann, German actress November 2 Brian Kemp, American politician, 83rd Governor of Georgia Craig Saavedra, American filmmaker Borut Pahor, President of Slovenia November 4 – Lena Zavaroni, Scottish entertainer (d. 1999) November 5 – Tatum O'Neal, American actress and author November 7 – John Barnes, Jamaican-born English footballer November 10 Hugh Bonneville, British actor Mike Powell, American long jumper[85] November 11 – Billy Gunn, American professional wrestler[86] November 15 – Benny Elias, Australian rugby league player November 18 – Peter Schmeichel, Danish-born football goalkeeper November 19 – Terry Farrell, American actress November 20 – Ming-Na Wen, Macanese-American actress November 21 – Nicollette Sheridan, English actress[87] November 23 – Erika Buenfil, Mexican actress, TV host and singer November 25 – Holly Cole, Canadian jazz singer Empress Masako Juan Carlos Varela Brad Pitt Jennifer Beals Til Schweiger December 2 – Ann Patchett, American novelist[88] December 4 – Sergey Bubka, Ukrainian pole vaulter December 7 – Mark Bowen, Welsh footballer December 8 Greg Howe, American guitarist Toshiaki Kawada, Japanese professional wrestler December 9 Empress Masako, Japanese consort of Emperor Naruhito[89] Bárbara Palacios, Miss Universe 1986 December 12 Juan Carlos Varela, Panamanian politician and 37th President of Panama Ai Orikasa, Japanese voice actress[90] December 13 Uwe-Jens Mey, German speed skater Jake White, South African rugby coach December 14 Cynthia Gibb, American actress Vytautas Juozapaitis, Lithuanian baritone, professor and television host December 15 – Helen Slater, American actress and singer- songwriter December 16 Benjamin Bratt, American actor Jeff Carson, American singer Bärbel Schäfer, German television presenter and talk show host December 18 Pauline Ester, French singer Rikiya Koyama, Japanese voice actor Charles Oakley, American basketball player Brad Pitt, American actor and film producer, co-founder of Plan B Entertainment December 19 Jennifer Beals, American actress Til Schweiger, German actor December 20 Infanta Elena, Duchess of Lugo, Spanish princess Iqbal Theba, Pakistani actor December 21 Donovan Ruddock, Jamaican Canadian professional boxer Govinda Ahuja, Indian actor and politician Jacques Simonet, Belgian politician (d. 2007) December 22 Vladimir Flórez, Colombian cartoonist Bryan Gunn, Scottish footballer Luna H. Mitani, Japanese-American Surrealist painter December 23 – Donna Tartt, American novelist December 24 Caroline Aherne, English actress, comedienne and screenwriter (d. 2016) Sanjay Mehrotra, Indian entrepreneur December 26 – Lars Ulrich, Danish rock drummer (Metallica) December 29 Graciano Rocchigiani, German professional boxer (d. 2018) Francisco Bustamante, Filipino billiard player Ulf Kristersson, 35th Prime Minister of Sweden Sean Payton, American football coach December 31 – Azalina Othman Said, Malaysian politician Further information: Category:1963 deaths Dick Powell Sylvanus Olympio Hugh Gaitskell Avra Theodoropoulou Robert Frost January 2 Jack Carson, Canadian actor (b. 1910)[91] Dick Powell, American actor (b. 1904)[92] January 3 – Shinobu Ishihara, Japanese ophthalmologist (b. 1879)[93] January 5 Rogers Hornsby, American baseball player (b. 1896)[94] Erik Strandmark, Swedish film actor (b. 1919) January 6 – Frank Tuttle, American film director (b. 1892) January 7 – Erik Lundqvist, Swedish athlete (b. 1908) January 9 – Enea Bossi, Sr., Italian-born American aerospace engineer and aviation pioneer (b. 1888) January 10 – Franz Planer, Austrian film cinematographer (b. 1894) January 13 Sonny Clark, American jazz pianist (b. 1931) Sylvanus Olympio, Togolese politician, 1st President of Togo (assassinated) (b. 1902)[95] Ramón Gómez de la Serna, Spanish writer (b. 1888) January 14 Hugh Greer, American basketball coach (b. 1904)[96] Gustav Regler, German socialist novelist (b. 1898) January 15 – Cesare Fantoni, Italian actor and voice actor (b. 1905) January 18 – Hugh Gaitskell, British politician, leader of the Labour Party (b. 1906) January 20 Fyodor Terentyev, Soviet Olympic cross-country skier (b. 1925) Avra Theodoropoulou, Greek suffragist (b. 1880)[97] January 21 – Al St. John, American actor (b. 1892) January 23 Mohammad Ali Bogra, Pakistani statesman, politician and diplomat, 3rd Prime Minister of Pakistan (b. 1909) Józef Gosławski, Polish sculptor and medallic artist (b. 1908) January 24 Otto Harbach, American lyricist and librettist (b. 1873) Kenneth Western, part of The Western Brothers (b. 1899) January 25 – Marion Sunshine, American actress (b. 1894) January 26 Hans Kopfermann, German physicist (b. 1895) Ole Olsen, American actor (b. 1892) January 27 – John Farrow, Australian-born American film director (b. 1904) January 29 Anthony Coldeway, American screenwriter (b. 1887) Robert Frost, American poet (b. 1874)[98] Lee Meadows, American baseball player (b. 1894) Isaías de Noronha, 13th President of Brazil (b. 1873)[99] January 30 Jane Gail, American silent movie and stage actress (b. 1890) Francis Poulenc, French composer (b. 1899) January 31 – Alasgar Alakbarov, Azerbaijani actor (b. 1910) Abd al-Karim Qasim Sylvia Plath Fernando Tambroni Rajendra Prasad February 1 Louis D. Lighton, American screenwriter and producer (b. 1895) Wyndham Standing, English actor (b. 1880) February 2 – William Gaxton, American vaudeville, film and theatre performer (b. 1893) February 6 Abd el-Krim, Riffian political and military leader (b. 1882) Piero Manzoni, Italian artist (b. 1933) February 8 – George Dolenz, American actor (b. 1908) February 9 – Abd al-Karim Qasim, Iraqi general, 24th Prime Minister of Iraq (executed) (b. 1914) February 11 – Sylvia Plath, American poet and novelist (b. 1932)[100] February 15 Edgardo Donato, Uruguayan tango composer and orchestra leader (b. 1897) Louis J. Gasnier, French film director (b. 1875) Bump Hadley, Major League Baseball pitcher (b. 1904) February 16 Else Jarlbak, Danish film actress (b. 1911) László Lajtha, Hungarian composer, ethnomusicologist and conductor (b. 1892) February 18 Monte Blue, American actor (b. 1887) Beppe Fenoglio, Italian fiction writer and partisan (b. 1887)[101] Fernando Tambroni, Italian politician and 36th Prime Minister of Italy (b. 1901) Tokugawa Iemasa, Japanese politician, 17th head of the Tokugawa shogunate (b. 1884) Zareh I, Armenian Catholicos of Cilicia (b. 1915) February 19 – Benny Moré, Cuban singer (b. 1919) February 20 Ferenc Fricsay, Hungarian conductor (b. 1914) Jacob Gade, Danish violinist and composer (b. 1879) Bill Hinchman, American baseball player (b. 1883) February 22 – Arthur Guy Empey, American soldier (in British service), author, screenwriter and actor (b. 1883) February 25 – Melville J. Herskovits, American anthropologist (b. 1895) February 28 Rajendra Prasad, Indian politician, 1st President of India (b. 1884) Eppa Rixey, American baseball player (Cincinnati Reds) and a member of the MLB Hall of Fame (b. 1891) Patsy Cline William Beveridge Thoralf Skolem Henry Bordeaux March 1 – Irish Meusel, American baseball player (b. 1893) March 4 – William Carlos Williams, American poet (b. 1883)[102] March 5 Patsy Cline, American singer (b. 1932) Ludde Gentzel, Swedish film actor (b. 1885) Cyril Smith, Scottish actor (b. 1892) Ahmed Lutfi el-Sayed, Egyptian intellectual and anti-colonial activist (b. 1872) March 6 – Robert E. Cornish, scientist (b. 1903) March 7 – Joachim Holst-Jensen, Norwegian film actor (b. 1880) March 11 Ignat Bednarik, Romanian painter (b. 1882) Joe Judge, American baseball player (b. 1894) March 15 Victor Feguer, convicted murderer (executed) (b. 1935) March 16 Archduchess Elisabeth Marie of Austria (b. 1883) William Beveridge, British economist (b. 1879) March 17 Thomas Lennon, screenwriter (b. 1896) Lizzie Miles, American blues singer (b. 1895) March 18 Sir Hubert Gough, British general (b. 1870) Wanda Hawley, American actress (b. 1895) March 20 – Manuel Arteaga y Betancourt, Cuban Roman Catholic cardinal (b. 1879) March 21 – Felice Minotti, Italian film actor (b. 1887) March 22 Cilly Aussem, German tennis champion (b. 1909) Abraham Ellstein, American composer (b. 1907) Mihály Székely, Hungarian bass singer (b. 1901) March 23 – Thoralf Skolem, Norwegian mathematician (b. 1887) March 25 – Felix Adler, American screenwriter (b. 1884) March 27 – Harry Piel, German actor, film director, screenwriter and film producer (b. 1892) March 28 Antoine Balpêtré, French film actor (b. 1898) Frank J. Marion, American motion picture pioneer (b. 1869) March 31 Harry Akst, American songwriter (b. 1894) Sir Harold Franklyn, British army general (b. 1885) Alma Richards Saint Gaetano Catanoso Felix Manalo Yitzhak Ben-Zvi April 1 – Agnes Mowinckel, Norwegian actress and stage producer (b. 1875) April 3 – Alma Richards, American athlete (b. 1890) April 4 Gaetano Catanoso, Italian Roman Catholic priest and saint (b. 1879) Jason Robards Sr., American stage and screen actor (b. 1892) Oskari Tokoi, leader of the Social Democratic Party of Finland (b. 1873) April 5 – Mario Fabrizi, English comedian and actor (b. 1924) April 6 – Otto Struve, Russian–American astronomer (b. 1897) April 7 – Amedeo Maiuri, Italian archaeologist (b. 1886) April 8 – Irena Káňová, Slovak politician (b. 1893)[103] April 9 Benno Moiseiwitsch, Jewish-Ukrainian pianist (b. 1890) Xul Solar, Argentine painter, sculptor and writer (b. 1887) April 11 – Nando Bruno, Italian film actor (b. 1895) April 12 Nicolette Bruining, Dutch theologian and humanitarian (b. 1886)[104] Felix Manalo, 1st Executive Minister, Iglesia ni Cristo (b. 1886) Herbie Nichols, American jazz pianist and composer (b. 1919) April 14 Abdel Messih El-Makari, Egyptian Coptic Orthodox monk, priest and sa

(1759–1833) was a leader of the movement to abolish the slave trade. The abolitionism movement achieved success in the 19th century. The Atlantic slave trade was abolished in the United States in 1808, and by the end of the century, almost every government had banned slavery. The Slavery Abolition Act 1833 banned slavery throughout the British Empire, and the Lei Áurea abolished slavery in Brazil in 1888. Abolitionism in the United States continued until the end of the American Civil War. Frederick Douglass and Harriet Tubman were two of many American abolitionists who helped win the fight against slavery. Douglass was an articulate orator and incisive antislavery writer, while Tubman worked with a network of antislavery activists and safe houses known as the Underground Railroad. The American Civil War took place from 1861 to 1865. Eleven southern states seceded from the United States, largely over concerns related to slavery. In 1863, President Abraham Lincoln issued the Emancipation Proclamation. Lincoln issued a preliminary[13] on September 22, 1862, warning that in all states still in rebellion (Confederacy) on January 1, 1863, he would declare their slaves "then, thenceforward, and forever free."[14] He did so.[15] The Thirteenth Amendment to the Constitution,[16] ratified in 1865, officially abolished slavery in the entire country. Five days after Robert E. Lee surrendered at Appomattox Courthouse, Virginia, Lincoln was assassinated by actor and Confederate sympathizer John Wilkes Booth. Main article: Decline and modernization of the Ottoman Empire Ibrahim Pasha of Egypt, leader of the Egyptian Army in the Egyptian–Ottoman War (1831–1833)[17] In 1817, the Principality of Serbia became suzerain from the Ottoman Empire, and in 1867, it passed a constitution that defined its independence from the Ottoman Empire. In 1830, Greece became the first country to break away from the Ottoman Empire after the Greek War of Independence. In 1831, the Bosnian Uprising against Ottoman rule occurred. In 1831, The First Egyptian–Ottoman War (1831–1833) occurred, between the Ottoman Empire and Egypt brought about by Muhammad Ali Pasha's demand to the Sublime Porte for control of Greater Syria, as reward for aiding the Sultan during the Greek War of Independence. As a result, Egyptian forces temporarily gained control of Syria, advancing as far north as Kütahya.[18] In 1876, Bulgarians instigated the April Uprising against Ottoman rule. Following the Russo-Turkish War, the Treaty of Berlin recognized the formal independence of the Serbia, Montenegro, and Romania. Bulgaria became autonomous. Main article: Taiping Rebellion A scene of the Taiping Rebellion The Taiping Rebellion was the bloodiest conflict of the 19th century, leading to the deaths of around 20–30 million people. Its leader, Hong Xiuquan, declared himself the younger brother of Jesus Christ and developed a new Chinese religion known as the God Worshipping Society. After proclaiming the establishment of the Taiping Heavenly Kingdom in 1851, the Taiping army conquered a large part of China, capturing Nanjing in 1853. In 1864, after the death of Hong Xiuquan, Qing forces recaptured Nanjing and ended the rebellion.[19] Main article: Meiji Restoration During the Edo period, Japan largely pursued an isolationist foreign policy. In 1853, United States Navy Commodore Matthew C. Perry threatened the Japanese capital Edo with gunships, demanding that they agree to open trade. This led to the opening of trade relations between Japan and foreign countries, with the policy of Sakoku formally ended in 1854. By 1872, the Japanese government under Emperor Meiji had eliminated the daimyō system and established a strong central government. Further reforms included the abolition of the samurai class, rapid industrialization and modernization of government, closely following European models.[20] Main articles: Western imperialism in Asia and Scramble for Africa Arrival of Marshal Randon in Algiers, French Algeria in 1857 The Maratha Confederacy and the East India Company sign the Treaty of Bassein in 1802. 1803: United States more than doubles in size when it buys out France's territorial claims in North America via the Louisiana Purchase. This begins the U.S.'s westward expansion to the Pacific, referred to as its Manifest Destiny, which involves annexing and conquering land from Mexico, Britain, and Native Americans. 1817 – 1819: British Empire annexed the Maratha Confederacy after the Third Anglo-Maratha War. 1823 – 1887: British Empire annexed Burma (now also called Myanmar) after three Anglo-Burmese Wars. 1848 – 1849: Sikh Empire is defeated in the Second Anglo-Sikh War. Therefore, the entire Indian subcontinent is under British control. 1862: France gained its first foothold in Southeast Asia and in 1863 annexed Cambodia. 1867: United States purchased Alaska from Russia. Comparison of Africa in the years 1880 and 1913 In Africa, European exploration and technology led to the colonization of almost the entire continent by 1898. New medicines such as quinine and more advanced firearms allowed European nations to conquer native populations.[21] Motivations for the Scramble for Africa included national pride, desire for raw materials, and Christian missionary activity. Britain seized control of Egypt to ensure control of the Suez Canal, but Ethiopia defeated Italy in the First Italo–Ethiopian War at the Battle of Adwa. France, Belgium, Portugal, and Germany also had substantial colonies. The Berlin Conference of 1884–1885 attempted to reach agreement on colonial borders in Africa, but disputes continued, both amongst European powers and in resistance by the native populations.[21] In 1867, diamonds were discovered in the Kimberley region of South Africa. In 1886, gold was discovered in Transvaal. This led to colonization in Southern Africa by the British and business interests, led by Cecil Rhodes.[21] 1801–1815: First Barbary War and the Second Barbary War between the United States and the Barbary States of North Africa. 1802: Tay Son army recaptured Phu Xuan, causing Vo Tanh to commit suicide, Nguyen Phuc Anh successfully captured Thang Long, founded the Nguyen dynasty 1804–1810: Fulani Jihad in Nigeria. 1804–1813: Russo-Persian War. 1806–1812: Russo-Turkish War, Treaty of Bucharest. 1807–1837: Musket Wars among Māori in many parts of New Zealand. 1808–1809: Russia conquers Finland from Sweden in the Finnish War.1816: Shaka rises to power over the Zulu Kingdom. Zulu expansion was a major factor of the Mfecane ("Crushing") that depopulated large areas of southern Africa. 1810: Grito de Dolores begins the Mexican War of Independence. 1811: Battle of Tippecanoe: U.S. outnumbering Native Americans resulting in defeat and burning of community 1812–1815: War of 1812 between the United States and Britain; ends in a draw, except that Native Americans lose power. 1813–1837: Afghan–Sikh Wars. 1814–1816: Anglo-Nepalese War between Nepal (Gurkha Empire) and British Empire. 1817: First Seminole War begins in Florida. 1817: Russia commences its conquest of the Caucasus. 1820: Revolutions of 1820 in Southern Europe 1821–1830: Greek War of Independence against the Ottoman Empire. 1825–1830: Java War begins. 1826–1828: After the final Russo-Persian War, the Persian Empire took back territory lost to Russia from the previous war. 1828–1832: Black War in Tasmania leads to the near extinction of the Tasmanian aborigines 1830: July Revolution overthrew old line of Bourbons. 1830: November Uprising in Poland against Russia. 1830: Belgian Revolution results in Belgium's independence from Netherlands. 1830: End of the Java War. The whole area of Yogyakarta and Surakarta Manca nagara Dutch seized. 27 September, Klaten Agreement determines a fixed boundary between Surakarta and Yogyakarta and permanently divide the kingdom of Mataram was signed by Sasradiningrat, Pepatih Dalem Surakarta, and Danurejo, Pepatih Dalem Yogyakarta. Mataram is a de facto and de yure controlled by the Dutch East Indies. 1831: France invades and occupies Algeria. 1831–1833: Egyptian–Ottoman War. 1832–1875: Regimental rebellions of Brazil 1835–1836: Texas Revolution results in Texas's independence from Mexico. 1839–1842: First Opium War begins. 1846–1848: Mexican–American War leads to Mexico's cession of much of the modern-day Southwestern United States. 1848: February Revolution overthrew Louis Philippe's government. Second Republic proclaimed; Louis Napoleon, nephew of Napoleon I, elected president. 1853–1856: Crimean War between France, the United Kingdom, the Ottoman Empire and Russia. 1856–1860: Second Opium War 1857: Indian Rebellion against the Company Raj. After this the power of the East India Company is transferred to the British Crown. 1859: Franco-Austrian War is part of the wars of Italian unification. 1861–1865: American Civil War between the Union and seceding Confederacy. Dead Confederate soldiers. In the American Civil War, 30% of all Southern white males aged 18–40 were killed.[22] 1861–1867: French intervention in Mexico and the creation of the Second Mexican Empire, ruled by Maximilian I of Mexico and his consort Carlota of Mexico. 1863–1865: January Uprising against the Russian Empire. 1864–1870: Paraguayan War ends Paraguayan ambitions for expansion and destroys much of the Paraguayan population. 1866: Austro-Prussian War results in the dissolution of the German Confederation and the creation of the North German Confederation and the Austrian-Hungarian Dual Monarchy. 1868–1869: Boshin War results in end of the shogunate and the founding the Japanese Empire. 1868–1878: Ten Years' War between Cuba and Spain. 1870–1871: Franco-Prussian War results in the unifications of Germany and Italy, the collapse of the Second French Empire and the emergence of a New Imperialism. 1870: Napoleon III abdicated after unsuccessful conclusion of Franco-Prussian War. Third Republic proclaimed. 1876: The April Uprising in Bulgaria against the Ottoman Empire. 1879: Anglo-Zulu War results in British victory and the annexation of the Zulu Kingdom. 1879–1880: Little War against Spanish rule in Cuba leads to rebel defeat. 1879–1883: Chile battles with Peru and Bolivia over Andean territory in the War of the Pacific. 1880–1881: First Boer War begins. 1881–1899: Mahdist War in Sudan.A depiction of the Battle of Omdurman, 1898. During the battle, Winston Churchill took part in a cavalry charge. 1882: Anglo-Egyptian War British invasion and subsequent occupation of Egypt 1883–1898: Mandingo Wars between the French colonial empire and the Wassoulou Empire of the Mandingo people led by Samory Touré. 1894–1895: After the First Sino-Japanese War, China cedes Taiwan to Japan and grants Japan a free hand in Korea. 1895: Taiwan is ceded to the Empire of Japan as a result of the First Sino-Japanese War. 1895–1896: Ethiopia defeats Italy in the First Italo–Ethiopian War at the Battle of Adwa. 1895–1898: Cuban War for Independence results in Cuban independence from Spain. 1896–1898: Philippine Revolution results in a Filipino victory. 1898: Spanish–American War results in the independence of Cuba. 1899–1901: Boxer Rebellion in China is suppressed by the Eight-Nation Alliance. 1899–1902: Thousand Days' War in Colombia breaks out between the "Liberales" and "Conservadores", culminating with the loss of Panama in 1903. 1899–1902: Second Boer War begins. 1899–1902: Philippine–American War begins. Distinguished Men of Science.[23] Use the cursor to see who is who.[24] Main article: 19th century in science The 19th century saw the birth of science as a profession; the term scientist was coined in 1833 by William Whewell,[25] which soon replaced the older term of natural philosopher. Among the most influential ideas of the 19th century were those of Charles Darwin (alongside the independent researches of Alfred Russel Wallace), who in 1859 published the book The Origin of Species, which introduced the idea of evolution by natural selection. Another important landmark in medicine and biology were the successful efforts to prove the germ theory of disease. Following this, Louis Pasteur made the first vaccine against rabies, and also made many discoveries in the field of chemistry, including the asymmetry of crystals. In chemistry, Dmitri Mendeleev, following the atomic theory of John Dalton, created the first periodic table of elements. In physics, the experiments, theories and discoveries of Michael Faraday, André-Marie Ampère, James Clerk Maxwell, and their contemporaries led to the creation of electromagnetism as a new branch of science. Thermodynamics led to an understanding of heat and the notion of energy was defined. Other highlights include the discoveries unveiling the nature of atomic structure and matter, simultaneously with chemistry – and of new kinds of radiation. In astronomy, the planet Neptune was discovered. In mathematics, the notion of complex numbers finally matured and led to a subsequent analytical theory; they also began the use of hypercomplex numbers. Karl Weierstrass and others carried out the arithmetization of analysis for functions of real and complex variables. It also saw rise to new progress in geometry beyond those classical theories of Euclid, after a period of nearly two thousand years. The mathematical science of logic likewise had revolutionary breakthroughs after a similarly long period of stagnation. But the most important step in science at this time were the ideas formulated by the creators of electrical science. Their work changed the face of physics and made possible for new technology to come about including a rapid spread in the use of electric illumination and power in the last two decades of the century and radio wave communication at the end of the 1890s. Michael Faraday (1791–1867) Charles Darwin (1809–1882) 1807: Potassium and Sodium are individually isolated by Sir Humphry Davy. 1831–1836: Charles Darwin's journey on HMS Beagle. 1859: Charles Darwin publishes On the Origin of Species. 1861: James Clerk Maxwell publishes On Physical Lines of Force, formulating the four Maxwell's equations. 1865: Gregor Mendel formulates his laws of inheritance. 1869: Dmitri Mendeleev creates the Periodic table. 1873: Maxwell's A Treatise on Electricity and Magnetism published. 1877: Asaph Hall discovers the moons of Mars 1896: Henri Becquerel discovers radioactivity; J. J. Thomson identifies the electron, though not by name. Robert Koch discovered the tuberculosis bacilli. In the 19th century, the disease killed an estimated 25% of the adult population of Europe.[26] 1804: Morphine first isolated. 1842: Anesthesia used for the first time. 1847: Chloroform invented for the first time, given to Queen Victoria at the birth of her eighth child, Prince Leopold in 1853 1855: Cocaine is isolated by Friedrich Gaedcke. 1885: Louis Pasteur creates the first successful vaccine against rabies for a young boy who had been bitten 14 times by a rabid dog. 1889: Aspirin patented. Thomas Edison was an American inventor, scientist, and businessman who developed many devices that greatly influenced life around the world, including the motion picture camera, phonograph and long-lasting, practical electric light bulb. Built for the Netphener bus company in 1895, the Benz Omnibus was the first motor bus in history. 1804: First steam locomotive begins operation. 1816: Laufmaschine invented by Karl von Drais. 1825: Erie Canal opened connecting the Great Lakes to the Atlantic Ocean. 1825: First isolation of aluminium. 1827: First photograph taken (technique of heliography) by Joseph Nicephore Niepce. 1825: The Stockton and Darlington Railway, the first public railway in the world, is opened. 1826: Samuel Morey patents the internal combustion engine. 1829: First electric motor built. 1837: Telegraphy patented. 1841: The word "dinosaur" is coined by Richard Owen. 1844: First publicly funded telegraph line in the world—between Baltimore and Washington—sends demonstration message on 24 May, ushering in the age of the telegraph. This message read "What hath God wrought?" (Bible, Numbers 23:23) 1849: The safety pin and the gas mask are invented. 1852: The first successful blimp is invented 1855: Bessemer process enables steel to be mass-produced. 1856: World's first oil refinery in Romania 1858: Invention of the phonautograph, the first true device for recording sound. 1859: The first ironclad was launched into sea by the French Navy. 1860: Benjamin Tyler Henry invents the 16-shot Henry Rifle 1861: Richard Gatling invents the Gatling Gun, first modern machine gun used notably in the battles of Cold Harbor and Petersburg 1862: First meeting in combat of ironclad warships, USS Monitor and CSS Virginia, during the American Civil War. 1863: First section of the London Underground opens. 1866: Successful transatlantic telegraph cable follows an earlier attempt in 1858. 1867: Alfred Nobel invents dynamite. 1868: Safety bicycle invented. 1869: First transcontinental railroad completed in United States on 10 May. 1870: Rasmus Malling-Hansen's invention the Hansen Writing Ball becomes the first commercially sold typewriter. 1873: Blue jeans and barbed wire are invented. 1877: Thomas Edison invents the phonograph 1878: First commercial telephone exchange in New Haven, Connecticut. c. 1875/1880: Introduction of the widespread use of electric lighting. These included early crude systems in France and the UK and the introduction of large scale outdoor arc lighting systems by 1880.[27] 1879: Thomas Edison patents a practical incandescent light bulb. 1882: Introduction of large scale electric power utilities with the Edison Holborn Viaduct (London) and Pearl Street (New York) power stations supplying indoor electric lighting using Edison's incandescent bulb.[28][29] 1884: Sir Hiram Maxim invents the first self-powered Machine gun, the Maxim gun. 1885: Singer begins production of the 'Vibrating Shuttle'. which would become the most popular model of sewing machine. 1886: Karl Benz sells the first commercial automobile. 1890: The cardboard box is invented. 1892: John Froelich develops and constructs the first gasoline/petrol-powered tractor. 1894: Karl Elsener invents the Swiss Army knife. 1894: First gramophone record. 1895: Wilhelm Röntgen identifies x-rays. Brigham Young led the LDS Church from 1844 until his death in 1877. 1818: The first permanent Reform Judaism congregation, the Neuer Israelitischer Tempel, is founded in Hamburg on October 18. Around the same time, through the development of Wissenschaft des Judentums, the seeds of Conservative Judaism are sown. 1830: The Church of Jesus Christ of Latter Day Saints is established. 1844: The Báb announces his revelation on 23 May, founding Bábism. He announced to the world of the coming of "He whom God shall make manifest". He is considered the forerunner of Bahá'u'lláh, the founder of the Bahá'í Faith. 1850s–1890s: In Islam, Salafism grows in popularity. 1851: Hong Xiuquan, the leader of the God Worshipping Society, founds the Taiping Heavenly Kingdom. 1857: In Paris, France, Allan Kardec, publishes The Spirits' Book and founds the Spiritism. 1868: In Japan, State Shinto is established amidst the Meiji Restoration. 1869–1870: The First Vatican Council is convened, articulating the dogma of papal infallibility and promoting a revival of scholastic theology. 1871–1878: In Germany, Otto von Bismarck challenges the Catholic Church in the Kulturkampf ("Culture War") 1875: Helena Blavatsky co-founds the Theosophical Society and becomes the leading articulator of Theosophy. 1879: Mary Baker Eddy founds the Church of Christ, Scientist. The Watchtower, published by the Jehovah's Witnesses, releases its first issue. 1881: In the Sudan, Muhammad Ahmad claims to be the Mahdi, founding the Mahdist State and declaring war on the Khedivate of Egypt. 1889: Mirza Ghulam Ahmad establishes the Ahmadiyya Muslim Community. 1891: Pope Leo XIII issues the papal encyclical Rerum novarum, the first major document informing modern Catholic social teaching. The Great Exhibition in London. Starting during the 18th century, the UK was the first country in the world to industrialize. 1808: Beethoven composes his Fifth Symphony 1813: Jane Austen publishes Pride and Prejudice 1818: Mary Shelley publishes Frankenstein; or, The Modern Prometheus. 1819: John Keats writes his six of his best-known odes. 1819: Théodore Géricault paints his masterpiece The Raft of the Medusa, and exhibits it in the French Salon of 1819 at the Louvre. 1824: Premiere of Beethoven's Ninth Symphony. 1829: Johann Wolfgang von Goethe's Faust premieres. 1833–1834: Thomas Carlyle publishes Sartor Resartus. 1837: Charles Dickens publishes Oliver Twist. 1841: Ralph Waldo Emerson publishes Self-Reliance. 1845: Frederick Douglass publishes Narrative of the Life of Frederick Douglass, an American Slave. 1847: The Brontë sisters publish Jane Eyre, Wuthering Heights and Agnes Grey. 1848: Karl Marx and Friedrich Engels publish The Communist Manifesto. 1849: Josiah Henson publishes The Life of Josiah Henson, Formerly a Slave, Now an Inhabitant of Canada, as Narrated by Himself. 1851: Herman Melville publishes Moby-Dick. 1851: Sojourner Truth delivers the speech "Ain't I a Woman?". 1852: Harriet Beecher Stowe publishes Uncle Tom's Cabin. 1855: Walt Whitman publishes the first edition of Leaves of Grass. 1855: Frederick Douglass publishes the first edition of My Bondage and My Freedom. 1862: Victor Hugo publishes Les Misérables. 1863: Jules Verne begins publishing his collection of stories and novels, Voyages extraordinaires, with the novel Cinq semaines en ballon. 1865: Lewis Carroll publishes Alice's Adventures in Wonderland. 1869: Leo Tolstoy publishes War and Peace.Auguste Renoir, Bal du moulin de la Galette, 1876, Musée d'Orsay 1875: Georges Bizet's opera Carmen premiers in Paris. 1876: Richard Wagner's Ring Cycle is first performed in its entirety. 1883: Robert Louis Stevenson's Treasure Island is published. 1884: Mark Twain publishes the Adventures of Huckleberry Finn. 1886: Strange Case of Dr Jekyll and Mr Hyde by Robert Louis Stevenson is published. 1887: Sir Arthur Conan Doyle publishes his first Sherlock Holmes story, A Study in Scarlet. 1889: Vincent van Gogh paints The Starry Night. 1889: Moulin Rouge opens in Paris. 1892: Tchaikovsky's Nutcracker Suite premières in St Petersburg. 1894: Rudyard Kipling's The Jungle Book is published 1895: Trial of Oscar Wilde and premiere of his play The Importance of Being Earnest. 1897: Bram Stoker writes Dracula. 1900: L. Frank Baum publishes The Wonderful Wizard of Oz. Main articles: Romantic poetry and 19th century in literature Russian writer Leo Tolstoy, author of War and Peace and Anna Karenina On the literary front the new century opens with romanticism, a movement that spread throughout Europe in reaction to 18th-century rationalism, and it develops more or less along the lines of the Industrial Revolution, with a design to react against the dramatic changes wrought on nature by the steam engine and the railway. William Wordsworth and Samuel Taylor Coleridge are considered the initiators of the new school in England, while in the continent the German Sturm und Drang spreads its influence as far as Italy and Spain. French arts had been hampered by the Napoleonic Wars but subsequently developed rapidly. Modernism began.[30] The Goncourts and Émile Zola in France and Giovanni Verga in Italy produce some of the finest naturalist novels. Italian naturalist novels are especially important in that they give a social map of the new unified Italy to a people that until then had been scarcely aware of its ethnic and cultural diversity. There was a huge literary output during the 19th century. Some of the most famous writers included the Russians Alexander Pushkin, Nikolai Gogol, Leo Tolstoy, Anton Chekhov and Fyodor Dostoyevsky; the English Charles Dickens, John Keats, Alfred, Lord Tennyson and Jane Austen; the Scottish Sir Walter Scott, Thomas Carlyle and Arthur Conan Doyle (creator of the character Sherlock Holmes); the Irish Oscar Wilde; the Americans Edgar Allan Poe, Ralph Waldo Emerson, and Mark Twain; and the French Victor Hugo, Honoré de Balzac, Jules Verne, Alexandre Dumas and Charles Baudelaire.[31] Some American literary writers, poets and novelists were: Walt Whitman, Mark Twain, Harriet Ann Jacobs, Nathaniel Hawthorne, Ralph Waldo Emerson, Herman Melville, Frederick Douglass, Harriet Beecher Stowe, Joel Chandler Harris, and Emily Dickinson to name a few. See also: History of photography, List of photojournalists, Photojournalism, and Daguerreotype One of the first photographs, produced by Nicéphore Niépce in 1826 Nadar, self-portrait, c. 1860 Ottomar Anschütz, chronophotographer Mathew Brady, documented the American Civil War Edward S. Curtis, documented the American West notably Native Americans Louis Daguerre, inventor of daguerreotype process of photography, chemist Thomas Eakins, pioneer motion photographer George Eastman, inventor of roll film Hércules Florence, pioneer inventor of photography Auguste and Louis Lumière, pioneer film-makers, inventors Étienne-Jules Marey, pioneer motion photographer, chronophotographer Eadweard Muybridge, pioneer motion photographer, chronophotographer Nadar a.k.a. Gaspard-Félix Tournachon, portrait photographer Nicéphore Niépce, pioneer inventor of photography Louis Le Prince, motion picture inventor and pioneer film-maker Sergey Prokudin-Gorsky, chemist and photographer William Fox Talbot, inventor of the negative / positive photographic process. Main articles: History of art § 19th century, Western painting, and Ukiyo-e Francisco Goya, The Third of May 1808, 1814, Museo del Prado Eugène Delacroix, Liberty Leading the People, 1830, Louvre Vincent van Gogh, Self-portrait, 1889, National Gallery of Art Biscuits Lefèvre-Utile poster artwork by Alphonse Mucha, 1897 The Realism and Romanticism of the early 19th century gave way to Impressionism and Post-Impressionism in the later half of the century, with Paris being the dominant art capital of the world. In the United States the Hudson River School was prominent. 19th-century painters included: Ivan Aivazovsky Léon Bakst Albert Bierstadt William Blake Arnold Böcklin Rosa Bonheur William Burges Mary Cassatt Camille Claudel Paul Cézanne Frederic Edwin Church Thomas Cole Jan Matejko John Constable Camille Corot Gustave Courbet Honoré Daumier Edgar Degas Eugène Delacroix Thomas Eakins Caspar David Friedrich Paul Gauguin Théodore Géricault Vincent van Gogh William Morris Francisco Goya Andō Hiroshige Hokusai Winslow Homer Jean-Auguste-Dominique Ingres Isaac Levitan Édouard Manet Claude Monet Gustave Moreau Berthe Morisot Edvard Munch Mikhail Nesterov Camille Pissarro Augustus Pugin Pierre-Auguste Renoir Ilya Repin Auguste Rodin Albert Pinkham Ryder John Singer Sargent Valentin Serov Georges Seurat Ivan Shishkin Vasily Surikov James Tissot Henri de Toulouse-Lautrec Joseph Mallord William Turner Viktor Vasnetsov Eugène Viollet-le-Duc Mikhail Vrubel James Abbott McNeill Whistler Tsukioka Yoshitoshi Main articles: List of Romantic-era composers, Romantic music, and Romanticism Ludwig van Beethoven (1770–1827) Pyotr Ilyich Tchaikovsky (1840–1893) Sonata form matured during the Classical era to become the primary form of instrumental compositions throughout the 19th century. Much of the music from the 19th century was referred to as being in the Romantic style. Many great composers lived through this era such as Ludwig van Beethoven, Franz Liszt, Frédéric Chopin, Pyotr Ilyich Tchaikovsky, and Richard Wagner. The list includes: Mily Balakirev Ludwig van Beethoven Hector Berlioz Georges Bizet Alexander Borodin Johannes Brahms Anton Bruckner Frédéric Chopin Claude Debussy Antonín Dvořák Mikhail Glinka Edvard Grieg Scott Joplin Alexandre Levy Franz Liszt Gustav Mahler Felix Mendelssohn Modest Mussorgsky Jacques Offenbach Niccolò Paganini Nikolai Rimsky-Korsakov Gioachino Rossini Anton Rubinstein Camille Saint-Saëns Antonio Salieri Franz Schubert Robert Schumann Alexander Scriabin Arthur Sullivan Pyotr Ilyich Tchaikovsky Giuseppe Verdi Richard Wagner 1858: The Melbourne Football Club was formed, starting the sport of Australian Rules Football 1867: The Marquess of Queensberry Rules for boxing are published. 1872: The first recognised international football match, between England and Scotland, is played. 1877: The first test cricket match, between England and Australia, is played. 1891: Basketball is invented by James Naismith. 1895: Volleyball is invented. 1896: Olympic Games revived in Athens. For a chronological guide, see Timeline of the 19th century. 1801: The Kingdom of Great Britain and the Kingdom of Ireland merge to form the United Kingdom. 1802: The Wahhabis of the First Saudi State sack Karbala. 1803: William Symington demonstrates his Charlotte Dundas, the "first practical steamboat". 1803: The Wahhabis of the First Saudi State capture Mecca and Medina. 1804: Austrian Empire founded by Francis I. 1804: World population reaches 1 billion. 1805: The Battle of Trafalgar eliminates the French and Spanish naval fleets and allows for British dominance of the seas, a major factor for the success of the British Empire later in the century. 1805–1848: Muhammad Ali modernizes Egypt. 1819: 29 January, Stamford Raffles arrives in Singapore with William Farquhar to establish a trading post for the British East India Company; 8 February, the treaty is signed between Sultan Hussein of Johor, Temenggong Abdul Rahman and Stamford Raffles. Farquhar is installed as the first Resident of the settlement. 1810: The University of Berlin was founded. Among its students and faculty are Hegel, Marx, and Bismarck. The German university reform proves to be so successful that its model is copied around the world (see History of European research universities). 1814: Elisha Collier invents the Flintlock Revolver. 1814 : February 1 Eruption of Mayon Volcano 1815: April, Mount Tambora in Sumbawa island erupts, becoming the largest volcanic eruption in recorded history, destroying Tambora culture, and killing at least 71,000 people, including its aftermath. The eruption created global climate anomalies known as "volcanic winter".[32] 1816: Year Without a Summer: Unusually cold conditions wreak havoc throughout the Northern Hemisphere, likely influenced by the 1815 explosion of Mount Tambora. 1816–1828: Shaka's Zulu Kingdom becomes the largest in Southern Africa. 1819: The Republic of Colombia (Gran Colombia) achieves independence after Simón Bolívar's triumph at the Battle of Boyacá. 1819: The modern city of Singapore is established by the British East India Company. 1820: Discovery of Antarctica. 1820: Liberia founded by the American Colonization Society for freed American slaves. 1820: Dissolution of the Maratha Empire. 1821–1823: First Mexican Empire, as Mexico's first post-independence government, ruled by Emperor Agustín I of Mexico. 1822: Pedro I of Brazil declared Brazil's independence from Portugal on 7 September. 1823: Monroe Doctrine declared by US President James Monroe. 1825: The Decembrist revolt. Decembrists at the Senate Square 1829: Sir Robert Peel founds the Metropolitan Police Service, the first modern police force. Emigrants leaving Ireland. From 1830 to 1914, almost 5 million Irish people emigrated to the U.S. 1830: Anglo-Russian rivalry over Afghanistan, the Great Game, commences and concludes in 1895. 1831: November Uprising ends with crushing defeat for Poland in the Battle of Warsaw. 1832: The British Parliament passes the Great Reform Act 1832. 1834–1859: Imam Shamil's rebellion in Russian-occupied Caucasus. 1835–1836: The Texas Revolution in Mexico resulted in the short-lived Republic of Texas. 1836: Samuel Colt popularizes the revolver and sets up a firearms company to manufacture his invention of the Colt Paterson revolver, a six bullets firearm shot one by one without reloading manually. 1837–1838: Rebellions of 1837 in Canada. 1838: By this time, 46,000 Native Americans have been forcibly relocated in the Trail of Tears. 1839–1860: After the First and Second Opium Wars, France, the United Kingdom, the United States and Russia gain many trade and associated concessions from China resulting in the start of the decline of the Qing dynasty. 1839–1919: Anglo-Afghan Wars lead to stalemate and the establishment of the Durand line 1842: Treaty of Nanking cedes Hong Kong to the British. 1843: The first wagon train sets out from Missouri. 1844: Rochdale Society of Equitable Pioneers establish what is considered the first cooperative in the world. 1845–1849: The Great Famine of Ireland leads to the Irish diaspora. 1848: The Communist Manifesto published. 1848: Seneca Falls Convention is the first women's rights convention in the United States and leads to the battle for women's suffrage. 1848–1855: California Gold Rush. 1849: Earliest recorded air raid, as Austria employs 200 balloons to deliver ordnance against Venice. 1850: The Little Ice Age ends around this time. 1850: Franz Hermann Schulze-Delitzsch establishes the first cooperative financial institution. Historical territorial expansion of the United States For later events, see Timeline of the 20th century. 1851: The Great Exhibition in London was the world's first international Expo or World Fair. 1852: Frederick Douglass delivers his speech "The Meaning of July Fourth for the Negro" in Rochester, New York. 1857: Sir Joseph Whitworth designs the first long-range sniper rifle. 1857–1858: Indian Rebellion of 1857. The British Empire assumes control of India from the East India Company. 1858: Construction of Big Ben is completed. 1859–1869: Suez Canal is constructed. The first vessels sail through the Suez Canal. 1860: Giuseppe Garibaldi launches the Expedition of the Thousand. 1861: Russia abolishes serfdom. 1862–1877: Muslim Rebellion in north-west China. 1863: Formation of the International Red Cross is followed by the adoption of the First Geneva Convention in 1864. 1865–1877: Reconstruction in the United States; Slavery is banned in the United States by the Thirteenth Amendment to the United States Constitution. 1867: Canada is formed, via the process of Canadian Confederation. 1868: Michael Barrett is the last person to be publicly hanged in England. 1869: The Suez Canal opens linking the Mediterranean to the Red Sea. A barricade in the Paris Commune, 18 March 1871. Around 30,000 Parisians were killed, and thousands more were later executed. Black Friday, 9 May 1873, Vienna Stock Exchange. The Panic of 1873 and Long Depression followed. 1870: Official dismantling of the Cultivation System and beginning of a 'Liberal Policy' of deregulated exploitation of the Netherlands East Indies.[33] 1870–1890: Long Depression in Western Europe and North America. 1871–1872: Famine in Persia is believed to have caused the death of 2 million. 1871: The Paris Commune briefly rules the French capital. 1872: Yellowstone National Park, the first national park, is created. 1874: The Société Anonyme Coopérative des Artistes Peintres, Sculpteurs, and Graveurs, better known as the Impressionists, organize and present their first public group exhibition at the Paris studio of the photographer Nadar. 1874: The Home Rule Movement is established in Ireland. 1875: HMS Challenger surveys the deepest point in the Earth's oceans, the Challenger Deep 1876: Battle of the Little Bighorn leads to the death of General Custer and victory for the alliance of Lakota, Cheyenne and Arapaho 1876–1914: The massive expansion in population, territory, industry and wealth in the United States is referred to as the Gilded Age. 1877: Great Railroad Strike in the United States may have been the world's first nationwide labour strike. 1881: Wave of pogroms begins in the Russian Empire. 1881–1882: The Jules Ferry laws are passed in France establishing free, secular education. 1883: Krakatoa volcano explosion, one of the largest in modern history. 1883: The quagga is rendered extinct. 1886: Construction of the Statue of Liberty; Coca-Cola is developed. 1888: Founding of the shipping line Koninklijke Paketvaart-Maatschappij (KPM) that supported the unification and development of the colonial economy.[33] 1888: The Golden Law abolishes slavery in Brazil. 1889: Eiffel Tower is inaugurated in Paris. Studio portrait of Ilustrados in Europe, c. 1890 1889: A republican military coup establishes the First Brazilian Republic. The parliamentary constitutional monarchy is abolished. 1889–1890: 1889–1890 pandemic kills 1 million people. 1890: First use of the electric chair as a method of execution. 1892: The World's Columbian Exposition was held in Chicago celebrating the 400th anniversary of Christopher Columbus's arrival in the New World. 1892: Fingerprinting is officially adopted for the first time. 1893: New Zealand becomes the first country to enact women's suffrage. 1893: The Coremans-de Vriendt law is passed in Belgium, creating legal equality for French and Dutch languages. 1894: The Dutch intervention in Lombok and Karangasem[33] resulted in the looting and destruction of Cakranegara Palace in Mataram.[34] J. L. A. Brandes, a Dutch philologist, discovers and secures Nagarakretagama manuscript in Lombok royal library. 1896: Philippine Revolution ends declaring Philippines free from Spanish rule. 1898: The United States gains control of Cuba, Puerto Rico, and the Philippines after the Spanish–American War. 1898: Empress Dowager Cixi of China engineers a coup d'état, marking the end of the Hundred Days' Reform; the Guangxu Emperor is arrested. 1900: Exposition Universelle held in Paris, prominently featuring the growing art trend Art Nouveau. 1900–1901: Eight nations invade China at the same time and ransack Forbidden City. Born on 19 April 1897, Japanese Jiroemon Kimura died on 12 June 2013, marking the death of the last man verified to have been born in the century.[35][36][37] Kimura remains to date the oldest verified man in history.[38] Subsequently, on 21 April 2018, Japanese Nabi Tajima (born 4 August 1900) died as the last person to verifiably have been born in the century.[39] Carl Friedrich Gauss Charles Darwin Victor Hugo, c. 1876 Dmitri Mendeleev Louis Pasteur, 1878 Marie Curie, c. 1898 Nikola Tesla José Rizal Jane Austen Leo Tolstoy, c. 1897 Edgar Allan Poe Jules Verne Charles Dickens Arthur Rimbaud, c. 1872 Mark Twain, 1894 Ralph Waldo Emerson Henry David Thoreau, 1861 Émile Zola, c. 1900 Anton Chekhov Fyodor Dostoevsky, 1876 John L Sullivan in his prime, c. 1882 David Livingstone 1864, left Britain for Africa in 1840 Jesse and Frank James, 1872 Sitting Bull and Buffalo Bill, in a studio portrait from 1885 Geronimo, 1887, prominent leader of the Chiricahua Apache William Bonney aka Henry McCarty aka Billy the Kid, c. late 1870s Deputies Bat Masterson and Wyatt Earp in Dodge City, 1876 Mathew Brady, self-portrait, c. 1875 Alfred, Lord Tennyson Thomas Nast, c. 1860–1875, photo by Mathew Brady or Levin Handy Mirza Ghulam Ahmad Mikhail Bakunin Søren Kierkegaard Solomon Northup Dred Scott Madam C. J. Walker Claude Monet's Impression, Sunrise (1872) gave the name to Impressionism. Paul Cézanne, self-portrait, 1880–1881 Scott Joplin Niccolò Paganini, c. 1819 Frédéric Chopin, 1838 John D. Rockefeller Timelines of modern history Long nineteenth century 19th century in film 19th century in games 19th-century philosophy Nineteenth-century theatre International relations (1814–1919) List of wars: 1800–1899 Victorian era France in the long nineteenth century History of Spain (1808–1874) History of Russia (1855–1892) Slavery in the United States Timeline of 19th-century Muslim history Timeline of historic inventions ^ Cleveland, William L.; Bunton, Martin (2016). A History of the Modern Middle East. doi:10.4324/9780429495502. ISBN 9780429495502. S2CID 153025861. The 19th century is frequently characterized as a period of tension between forces of continuity and change. The reformers who advocated the adoption of European institutions and technology, have often been portrayed as the progressive elements of society courageously charting the course toward an inevitably Westernized twentieth century. Conversely, the adherents of continuity, who viewed with alarm the dismantling of the Islamic order and sought to preserve tradition and retain the values and ideals that had served Ottoman and Islamic society so well for so long, are sometimes portrayed as nothing but archaic reactionaries. But we should avoid these simplistic characterizations if we are to appreciate the agonizing and dangerous process of transforming an established religious, social and political worldview. ^ "The First Telephone Call". www.americaslibrary.gov. Archived from the original on 2015-10-22. Retrieved 2015-10-25. ^ "Dec. 18, 1878: Let There Be Light — Electric Light". WIRED. 18 December 2009. Archived from the original on 21 October 2016. Ret