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Take the second order differential equation \$ a\frac{d^{2}y}{dx^{2}}+b\frac{dv}{dx}+cu = 0 ~\textrm{ and }~ a\frac{d^{2}y}{dx}+cu = 0 ~\textrm{ and }~ a\frac{dv}{dx}+cu = 0 
\{dx^{2}\} = A \frac{d^{2}y}{dx^{2}} + B \frac{d^{2}
$$ But $e^{\lambda x} e 0$, which implies that $$ a\lambda^{2} + b\lambda + c = 0 $$ The solutions of the above auxiliary quadratic equation. You can then apply any boundary conditions in the problem to get the particular solution. The auxiliary quadratic equation has real distinct roots if
$b^{2}-4ac \gt 0$, it has real repeated roots if $b^{2}-4ac = 0$, and it has complex roots if $b^{2}-4ac \lt 0$. The nature of these roots tells you about the behaviour of the solutions. You need to remember what the solutions look like for different pairs of roots. Real distinct roots if $b^{2}-4ac = 0$, and it has complex roots if $b^{2}-4ac \lt 0$. The nature of these roots tells you about the behaviour of the solutions. You need to remember what the solutions look like for different pairs of roots.
distinct roots \frac{1}{4} and 
general solution is $$ y=\left(A+Bx\right)^{2}+10\left(A+Bx\right)^{2} = 0 $$ The auxiliary equation has one root and $$ y=\left(A+Bx\right)^{2}+10\left(A+Bx\right)^{2} = 0 $$ The auxiliary equation has one root and $$ y=\left(A+Bx\right)^{2}+10\left(A+Bx\right)^{2} = 0 $$
 1 = 5 repeated twice. Therefore the general solution is $$ y=\left(A+Bx\right)e^{2}y + k^{2}y = 0 $$ Then the auxiliary equation has pure imaginary roots $\pm a i$ where $a$ is a real number,
 and the general solution is y=A\cos(kx)+B\sin(kx) the auxiliary equation is y=A\cos(kx)+B\sin(kx) and y=A\cos(kx)+B\sin(kx) and y=A\cos(kx)+B\sin(kx) the auxiliary equation is y=A\cos(kx)+B\sin(kx) and y=A\cos(kx)+B\cos(kx) and y=A\cos(kx)+B\cos(kx
the general solution is $$ y = A\cos(2x)+B\sin(2x) $$ Where $A$ and $B$ are arbitrary constants. Complex conjugate roots $a\pm bi$ where $A$ and $B$ are real numbers then the general solution is $$ y = e^{ax} \left( \frac{x}{2} \right) $$ Where $A$ and $B$ are arbitrary constants. This product arises from the fact that $e^{(a+bi)x}=e^{ax} \left( \frac{x}{2} \right) $$ Conjugate roots $$ a\pm bi$ where $A$ and $B$ are arbitrary constants. This product arises from the fact that $e^{(a+bi)x}=e^{ax} \left( \frac{x}{2} \right) $$ Conjugate roots $$ Conjugate roots $$ a\pm bi$ where $A$ and $B$ are arbitrary constants. This product arises from the fact that $e^{(a+bi)x}=e^{ax} \left( \frac{x}{2} \right) $$ Conjugate roots $$ Conjugate roots $$ a\pm bi$ where $A$ and $B$ are arbitrary constants. This product arises from the fact that $e^{(a+bi)x}=e^{ax} \left( \frac{x}{2} \right) $$ Conjugate roots $$ Conjugate roots $$ a\pm bi$ $$ a\pm bi$
1\pm i$. Therefore the general solution is $$ y = e^{x} \left(A \cos x + B\sin x \right) $\text{Merce $A$ and $B$ are arbitrary constants. Non-homogeneous section all had 0 on the right hand side, so they're called homogeneous. In this section I will show you non-homogeneous
differential equations, with some expression f(x) on the right hand side. Given the second order differential equation f(x) on the right hand side. Given the second order differential equation f(x) on the right hand side. We try different solution of the differential equation f(x) on the right hand side. We try different solutions f(x) is a constant f(
etc. try y=a\cos(kx)+b\sin(kx) if f(x) is an order f(x) in the complementary function by comparing both sides of the equation. This solution is called the particular integral. The general solution is then f(x) in the complementary function f(x) in the complementary function by comparing both sides of the equation. This solution is called the particular integral. The general solution is then f(x) is an order f(x) in the first of the complementary function by comparing both sides of the equation. This solution is called the particular integral f(x) in the first of f(x) is an order f(x) in the first of f(x) in the complementary function f(x) in the first of f(x) is an order f(x) in the first of f(x) in t
 find the particular integral. f(x)=e^{2x} so our trial function is y=ae^{2x}. Then f(x)=e^{2x} so our trial function is y=ae^{2x}. Then f(x)=e^{2x} so our trial function is f(x)=e^{2x}. Then f(x)=e^{2x} so our trial function is f(x)=e^{2x}.
 differential equation e^{2x}. Then 4ae^{2x} But the boundary conditions state that y(0)=0 and y'(0)=2. Using these boundary conditions yields 4ae^{2x} But the boundary conditions yields 4ae^{2x} But the boundary conditions state that y(0)=0 and y'(0)=2. Using these boundary conditions yields 4ae^{2x} But the boundary conditions state that y(0)=0 and y'(0)=2.
\Rightarrow A-2 = 0 \Rightarrow A=2 $$ And since $y'=-3A\sin(3x)+\frac{2}{13}e^{2x} $$ Example Q) Solve $\frac{d^{2}y} {dx^{2}}-4\frac{dy}{dx}+4y = \sin x $ given that $y(0)=0$. A) Start off by finding the complementary function is $$ y = \left(A+Bx\right)^2 $$ Where $A$ and $B$ are arbitrary constants. Now find the particular integral. $$(x)=\sin x $$ count in $$ y=-1\cos(x)+\frac{2}{13}e^{2x}$$$ = \left(-a\sin x + b\cos x -b\sin x \sin 
 $$ $$ 4a+3b = 1 $$ Solving them yields $a=\frac{4}{25}$ and $b=\frac{3}{25}$. Therefore the general solution is $$ y = \left(4\right{25}\right)$ and $$y'(0)=0$. Using these boundary conditions yields two simultaneous equations $$ \left(4\right{25}\right)$ and $$y'(0)=0$. Using these boundary conditions yields two simultaneous equations $$ \left(4\right{25}\right)$ and $$y'(0)=0$. Using these boundary conditions yields two simultaneous equations $$ \left(4\right{25}\right)$ and $$y'(0)=0$.
integral. f(x)=2x^{2}+1 so our trial function is y=ax^{2}+bx+c. Then f(x)=2x^{2}+bx+c. Th
 dimensional wave equation.[9] The Euler-Lagrange equation was developed in the 1750s by Euler and Lagrange in connection with their studies of the tautochrone problem. This is the problem of determining a curve on which a weighted particle will fall to a fixed point in a fixed amount of time, independent of the starting point. Lagrange solved this
 problem in 1755 and sent the solution to Euler. Both further developed Lagrange's method and applied it to mechanics, which led to the formulation of Lagrangian mechanics, which led to the formulation of Lagrange's method and applied it to mechanics, which led to the formulation of Lagrange's method and applied it to mechanics, which led to the formulation of Lagrange's method and applied it to mechanics, which led to the formulation of Lagrange's method and applied it to mechanics, which led to the formulation of Lagrange's method and applied it to mechanics, which led to the formulation of Lagrange's method and applied it to mechanics.
  motion of a body is described by its position and velocity as the time value varies. Newton's laws allow these variables to be expressed dynamically (given the body) as a differential equation for the unknown position of the body as a function of time. In some cases, this differential equation
  and some given functions of x. The unknown function is generally represented by a variable (often denoted y), which, therefore, depends on x. Thus x is often called the independent variable of the equation. The term "ordinary" is used in contrast with the term partial differential equation, which may be with respect to more than one independent variable
 differential equations (see Holonomic function). As, in general, the solutions of a differential equation (PDE) is a differential equation that contains
  equations often model multidimensional systems. Stochastic partial differential equations generalize partial differential equations for modeling randomness. Main article: Non-linear differential equations for modeling randomness.
  differential equation, an equation containing the second-order derivative is a second-order differential equation, and so on.[12][13] When it is written as a polynomial equation in the unknown function and its derivative of the unknown
  almost always have only first and second order derivatives in them, but there are some exceptions, such as the thin-film equation, which is a fourth order partial differential equation. In the first group of examples u is an unknown function of x, and c and ω are constants that are supposed to be known. Two broad classifications of both ordinary and partial
  differential equations consist of distinguishing between linear and nonlinear differential equations, and between homogeneous differential equations du d x = c u + x 2. {\displaystyle {\frac {du}}{dx}}=cu+x^{2}.} Homogeneous second-order
  linear ordinary differential equation: d 2 u d x 2 - x d u d x + u = 0. {\displaystyle {\frac {d^{2}u}{dx^{2}}}+\omega ^{2}u=0.} Homogeneous second-order linear constant coefficient ordinary differential equation describing the harmonic oscillator: d 2 u d x 2 + \omega 2 u = 0. {\displaystyle {\frac {d^{2}u}{dx^{2}}}+\omega ^{2}u=0.}
                    neous first-order nonlinear ordinary differential equation: d u d x = u 2 + 4. {\displaystyle {\frac {du}{dx}}=u^{2}+4.} Second-order nonlinear (due to sine function) ordinary differential equation describing the motion of a pendulum of length L: L d 2 u d x 2 + g sin u = 0. {\displaystyle L{\frac {d^{2}u}{dx^{2}}}+y\sin u=0.} In the next
  Laplace equation: \partial 2 u \partial x 2 + \partial 2 u \partial y 2 = 0. {\displaystyle {\frac {\partial x^{2}}}+{\frac {\partial u} {\partial u} {\partial x}}-{\frac {\partial u} {\partial x}}-{\frac {\partial u} {\partial x}}-{\frac {\partial u} {\part
  Given any point (a, b) {\displaystyle (a,b)} in the xy-plane, define some rectangular region Z {\displaystyle Z}, such that Z = [l, m] \times [n, p] and (a, b) {\displaystyle Z, m] \times [n,p]} and (a, b) {\displaystyle Z, m] \times [n,p]} and (a, b) {\displaystyle (a,b)} is in the interior of Z {\displaystyle Z, m] \times [n,p]} and (a, b) {\displaystyle (a,b)} is in the interior of Z {\
  condition that y = b {\displaystyle y = b} when x = a {\displaystyle x = a}, then there is locally a solution to this problem if y = b} when x = a {\displaystyle y = b} when x = a} and y = a} are both continuous on y = a}. The solution may not be
 unique. (See Ordinary differential equation for other results.) However, this only helps us with first order initial value problems. Suppose we had a linear initial value problem of the nth order: fn(x) dy dx + f0(x) y = g(x) {\displaystyle f {n}(x){\frac {d^{n}}y}{dx^{n}}} + f1(x){\frac {dx}} + f1(x){\frac {dx}} + f1(x) y = g(x) y =
 such that y(x 0) = y 0, y'(x 0) = y 0, y'(x 0) = y 0', y''(x 0
  equations where instead of the equation involving derivatives, the equation contains integrals. An integral equation (IDE) is an equation in which the unknown quantity is a stochastic process and the equation involves
  some known stochastic processes, for example, the Wiener process in the case of diffusion equations. A stochastic partial differential equation is an equation (SPDE) is an equation that generalizes SDEs to include space-time noise processes, with applications in quantum field theory and statistical mechanics. An ultrametric pseudo-differential equation is an equation
  which contains p-adic numbers in an ultrametric space. Mathematical models that involve ultrametric pseudo-differential equation (DAE) is a differential equation comprising differential and algebraic terms, given in implicit form. See also: Time scale
  Pure mathematics focuses on the existence and uniqueness of solutions, while applied mathematics emphasizes the rigorous justification of the methods for approximating solutions. Differential equations play an important role in modeling virtually every physical, technical, or biological process, from celestial motion, to bridge design, to interactions
  between neurons. Differential equations such as those used to solve real-life problems may not necessarily be directly solvable, i.e. do not have closed form solutions can be formulated as differential equations. In biology and economics,
  different, are described by the same equation; the Black-Scholes equation in finance is, for instance, related to the importance of the topic. See List of named differential equations. Some CAS software can solve differential
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  Kingdom used the McDonnell Douglas F-4 Phantom II as one of its principal combat aircraft. The Phantom was procured to serve in both the Royal Air Force (RAF) in several different roles. Most Phantoms operated by the UK were built as a special batch containing a significant amount of British technology. Two variants
  were initially built: the F-4K was a carrier-based air-defence interceptor for the Fleet Air Arm, while the F-4M was initially used by the RAF for tactical strike and reconnaissance, before transitioning to an air defence role in the 1970s. In the mid-1980s, a third Phantom variant was obtained when fifteen former US Navy F-4I aircraft were purchased to
 augment the UK's air defences. Although the Fleet Air Arm ceased using the Phantom in 1978, the RAF retained it until 1992, when it was withdrawn as part of a series of post-Cold War defence cuts. (Full article...) Recently featured: Transportation during the 2024 Summer Olympics and Paralympics Rhine campaign of 1796 Chinese characters Archive By
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Second Coalition: Austrian forces defeated the French Army of the Danube, capturing the strategically important Swiss town of Winterthur. 1954 - The security clearance of American nuclear physicist J. Robert Oppenheimer, head of Project Y, was revoked. 1967 - Australians voted overwhelmingly to include Indigenous Australians in population counts for
constitutional purposes and to allow the federal government to make special laws affecting them in states. 1997 - A destructive F5-rated tornado tracked through a subdivision of homes northwest of Jarrell, Texas, killing 27 people. Diego Ramírez de Arellano (d. 1624)Julia Ward Howe (b. 1819)Cilla Black (b. 1943)Gérard Jean-Juste (d. 2009) More
anniversaries: May 26 May 27 May 28 Archive By email List of days of the year About Anemonoides blanda, the Balkan anemone, Grecian windflower, or winter windflower, or winter windflower, is a species of flowering plant in the family Ranunculaceae. The species of flowering plant in the family Ranunculaceae.
valued for its daisy-like flowers, which appear in early spring, a time when little else is in flower. The flowers are found in various colors and are radially symmetrical, containing seven or more sepals and petals. This purple A. blanda flower was photographed in Bamberg, Germany. Photograph credit: Reinhold Möller Recently featured: Bluespotted
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fought between Sweden and Denmark-Norway off of the German coast. July 2: Parliament wins control of northern England from King Charles in the Battle of Marston Moor. 1644 by topic Arts and science Architecture Art Literature Music Science Leaders State leaders Colonial governors Religious leaders Birth and death categories Births - Deaths
 Establishments and disestablishments - Disest
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calendar176Thai solar calendar2186-2187Tibetan calendar別水羊年(female Water-Goat)1770 or 1389 or 617 — to —阳木猴年(male Wood-Monkey)1771 or 1390 or 618 1644 (MDCXLIV) was a leap year starting on Monday of the Julian calendar, the 1644th year of the Common Era (CE) and Anno
Domini (AD) designations, the 644th year of the 2nd millennium, the 44th year of the 17th century, and the 5th year of the 17th century, and the 5th year of the 1840s decade. As of the start of 1644, the Gregorian calendar was 10 days ahead of the Julian calendar, which remained in localized use until 1923. Calendar year It is one of eight years (CE) to contain each Roman numeral once
(1000(M)+500(D)+100(C)+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(L))+(-10(X)+50(
 January 30 Dutch explorer Abel Tasman departs from Batavia in the Dutch East India Company, to map the north coast of Australia. Tasman commands three ships, Limmen, Zeemeeuw and Braek, and returns to Batavia at the beginning of August with no major
  discoveries. Battle of Ochmatów: Polish-Lithuanian Commonwealth forces under hetman Stanisław Koniecpolski secure a substantial victory over the horde of Crimean Tatars under Tugay Bey. February 5 - The first livestock branding law in America is passed in Connecticut.[3] March 24 - Roger Williams is granted an official grant for his Rhode Island
Colony from the Parliament of England, allowing the establishment of a general assembly. April 18 - Opchanacanough leads the Powhatan Indians in an unsuccessful uprising against the English at Jamestown for the rest of his life.[4] This
is the last such Indian rebellion in the region. April 25 - A popular Chinese rebellion led by Li Zicheng sacks Beijing, prompting Chongzhen, the last emperor of the Ming dynasty, to commit suicide. May 6 - Johan Mauritius resigns as Governor of Brazil.[3] May 25 - Ming general Wu Sangui forms an alliance with the invading Manchus and opens the gates
of the Great Wall of China at Shanhaiguan Pass, letting the Manchus through towards the capital Beijing. May 26 - Battle of Montijo: The Kingdom of Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portugal is victorious over Habsburg Spain, in the first major action between the portugal is victorious over Habsburg Spain, in the first major action between the portugal is victorious over Habsburg Spain, in the first major action between the portugal is victorious over Habsburg Spain, in the first major action between the portugal is victorious over Habsburg Spain, in the first major action between the portugal is victorious over Habsburg Spain, in the first major action between the portugal is victorious over Habsburg Spain action between the portugal is victorious over Habsburg Spain action between the portugal is victorious over Habsburg Spain action between the portugal is victorious over Habsburg Spain action between the por
 Sangui gain a decisive victory over Li Zicheng's Shun dynasty. June 3 - Li Zicheng proclaims himself emperor of China, marking the beginning of Manchu rule over China proper. June 11 - During the English Civil War, Prince Rupert and his men take
 Liverpool Castle.[5] Liverpool is later reclaimed by Sir John Moore. July 1 - Torstenson War: Battle of Colberger Heide - The Dano-Norwegian and Swedish fleets fight a naval battle of Marston Moor - Liverpool is later reclaimed by Sir John Moore. July 2 - English Civil War: Battle of Marston Moor - Liverpool is later reclaimed by Sir John Moore. July 2 - English Civil War: Battle of Marston Moor - Liverpool is later reclaimed by Sir John Moore. July 2 - English Civil War: Battle of Marston Moor - Liverpool is later reclaimed by Sir John Moore. July 2 - English Civil War: Battle of Marston Moor - Liverpool is later reclaimed by Sir John Moore. July 2 - English Civil War: Battle of Marston Moore. July 2 - English Civil War: Battle of Marston Moore. July 3 - English Civil War: Battle of Marston Moore. July 3 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English Civil War: Battle of Marston Moore. July 4 - English 
The Parliamentarians crush the Royalists in Yorkshire, ending Charles I's hold on the north of England.[6] September 1 - English Civil War: Battle of Tippermuir - Montrose defeats Lord Elcho's Covenanters, reviving the Royalists gain
their last major victory.[7] September 15 - Pope Innocent X succeeds Pope Urban VIII, becoming the 236th pope.[8] October 1 - The Jews of Mogilev, Polish-Lithuanian Commonwealth, are attacked during Tashlikh. November 8 - The Shunzhi Emperor, the second emperor of the Qing dynasty, is enthroned in Beijing after the collapse of the Ming dynasty
as the first Qing emperor to rule over China proper. November 23 Battle of Jüterbog (December 3 New Style): Sweden's forces defeat those of the Holy Roman Empire. Areopagitica, an appeal for freedom of speech written by John Milton, is published in London. November - The Castle of Elvas in Portugal resists a 9-day siege by the Spanish during the
 Portuguese Restoration War. December 18 New Style) - As Christina comes of age, she is made ruling queen of Sweden. December - Bubonic plague breaks out in Edinburgh (Scotland). A Spanish officer is murdered in St. Dominic's Church, Macau during mass by colonists loyal to Portuguese Restoration War. Sigismund's
 Column is erected in Warsaw to commemorate King Sigismund III Vasa, who moved the capital of Poland from Kraków to Warsaw in 1596. Philosophia (Principles of Philosophia (Principles of Philosophia) in Amsterdam. The opera Ormindo is first performed in Venice (music by Francesco Cavalli, and libretto by Giovanni Faustini).
The West India Company[which?] displays greater interest in profit than in colonization.[vague] Thomas Britton Veit Hans Schnorr von Carolsfeld Otto Mencke Henry Winstanley Henrietta of England January 9 - Robert Gibbes, English-born landgrave in South Carolina (d. 1715) January 10 Louis François, duc de Boufflers, Marshal of France (d. 1711)
Celestino Sfondrati, Italian Catholic cardinal (d. 1696) January 11 - Hayashi Hōkō, Japanese philosopher (d. 1712) January 13 - John Partridge, English astrologer (d. 1710) January 13 - John Partridge, English concert promoter (d. 1714) January 13 - John Partridge, English astrologer (d. 1710) January 14 - Thomas Britton, English concert promoter (d. 1714) January 15 - Antoine Thomas, Jesuit missionary priest and
 astronomer (d. 1709)[9] January 26 - Thomas Boylston, American colonial doctor (d. 1695) February 2 Isaac Chayyim Cantarini, Italian rabbi (d. 1713) February 2 - Nils Bielke, member of the High Council of Sweden (d. 1716) February 8 - Pierre de La Broue, American bishop (d. 1720) February 12 - Jakob
 Ammann, Swiss founder of the Amish sect (d. 1712) February 24 - Maria Elisabeth Lämmerhirt, German mother of Johann Sebastian Bach (d. 1694) March 1 - Simon Foucher, French polemicist (d. 1696) March 15 - Veit Hans Schnorr von Carolsfeld, German iron and cobalt magnate (d. 1715) March 21 - Sir Walter Bagot, 3rd Baronet, English politician (d. 1696) March 15 - Veit Hans Schnorr von Carolsfeld, German iron and cobalt magnate (d. 1715) March 21 - Sir Walter Bagot, 3rd Baronet, English politician (d. 1696) March 15 - Veit Hans Schnorr von Carolsfeld, German iron and cobalt magnate (d. 1715) March 21 - Sir Walter Bagot, 3rd Baronet, English politician (d. 1696) March 15 - Veit Hans Schnorr von Carolsfeld, German iron and cobalt magnate (d. 1715) March 21 - Sir Walter Bagot, 3rd Baronet, English politician (d. 1696) March 15 - Veit Hans Schnorr von Carolsfeld, German iron and cobalt magnate (d. 1715) March 21 - Sir Walter Bagot, 3rd Baronet, English politician (d. 1696) March 15 - Veit Hans Schnorr von Carolsfeld, German iron and cobalt magnate (d. 1715) March 21 - Sir Walter Bagot, 3rd Baronet, English politician (d. 1696) March 15 - Veit Hans Schnorr von Carolsfeld, German iron and cobalt magnate (d. 1715) March 21 - Sir Walter Bagot, 3rd Baronet, 3r
1704) March 22 Otto Mencke, German philosopher and scientist (d. 1707) Sir James Rushout, 1st Baronet, English politician (d. 1708) March 25 - Heinrich von Cocceji, German philosopher and scientist (d. 1707) Sir James Rushout, 1st Baronet, English engineer (d. 1703) April 6 - António Luís de Sousa, 2nd Marquis of Minas, Portuguese general, governor-
general of Brazil (d. 1721) April 7 Nathaniel Johnson, American politician (d. 1713) François de Neufville, duc de Villeroy, French soldier (d. 1730) April 11 - Marie Jeanne Baptiste of Savoy (d. 1724) April 17 - Abraham Storck, Dutch painter (d. 1708) April 21 - Conrad von Reventlow, Danish statesman, first Grand Chancellor of
Denmark (d. 1708) May 2 - Robert Cotton, English politician (d. 1717) May 4 - Juan Caballero y Ocio, Spanish priest remarkable for lavish gifts to the Catholic Church and charity (d. 1707) May 5 - Sir Richard Newdigate, 2nd Baronet, English landowner (d. 1710) May 26 - Michael Ettmüller, German physician (d. 1683) June 2 - William Salmon, English
medical writer (d. 1713) June 7 - Johann Christoph Volkamer, German botanist (d. 1720) June 16 - Henrietta Anne Stuart, Princess of Scotland, England and Ireland and Duchess of Orléans (d. 1770) July 2 - Abraham a Sancta Clara, German Augustinian friar (d. 1709) July 4 -
 Josceline Percy, 11th Earl of Northumberland, English noble (d. 1670) July 7 - Joan Geelvinck, Dutch politician (d. 1707) July 10 - Miguel Bayot, Spanish Catholic prelate, Bishop of Cebu (from 1697) (d. 1700) July 22 - Peter Drelincourt, Irish chaplain (d. 1722) August 6 Christian Ernst, Margrave of Brandenburg-Bayreuth (1655-1712) (d. 1712) Louise de
  La Vallière, French mistress of Louis XIV of France (d. 1710)[11] August 12 - Heinrich Ignaz Franz Biber, Bohemian composer and violinist (d. 1704) August 29 - Anne Bourdon, nun in New France (d. 1711) August 30 - Thomas Tufton, 6th Earl of Thanet, English politician (d. 1729) September 3 -
 Richard Newport, 2nd Earl of Bradford, English politician (d. 1723) September 2 - Jacques Échard, French Dominican, historian of the Order (d. 1714) September 25 - Ole Rømer, Danish astronomer (d. 1710) October 1 - Jean
  Rousseau, French viol player (d. 1699) October 2 - François-Timoléon de Choisy, French abbé, author and cross-dresser (d. 1724) October 13 - Sipihr Shikoh, Mughal Emperor (d. 1708) October 14 - William Penn, English
Quaker and founder of Pennsylvania (d. 1718) October 26 - Mathias Steuchius, Swedish archbishop (d. 1730) November 23 - Tomás de Torrejón
  y Velasco, Spanish composer, musician and organist (d. 1728) December 25 - Walter Scott, Earl of Tarras, Scottish nobleman (d. 1731) Matsuo Bashō, Japanese poet (d. 1694) Pietro Erardi, Maltese chaplain and painter (d. 1727)[12] Antonio Stradivari, Italian violin maker (d. 1737)
  [13] Pope Urban VIII Johannes Wtenbogaert January 20 - Stefano Amadei, Italian painter (b. 1580) January 30 - William Chillingworth, controversial English churchman (b. 1602) January 28 - Guru Har Gobind, the Sixth Sikh Guru (b. 1595) March 15 - Countess Louise Juliana of
  Nassau, Regent of Bohemia (b. 1576) March 24 - Cecilia Renata of Austria, Queen of Poland (b. 1611) March 29 - Lord John Stewart, Scottish aristocrat, Royalist commander in the English Civil War (b. 1621) April 25 - Chongzhen, last
 Ming Emperor of China (suicide) (b. 1611) April 28 - Zsófia Bosnyák, Hungarian noblewoman (b. 1609) May 26 - Alfonso III d'Este, Duke of Modena, Italian noble (b. 1571) John of St. Thomas, Portuguese philosopher (b. 1589) July 4 - Brian Twyne, English archivist
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(b. 1581) July 7 - Hedwig of Hesse-Kassel, countess consort of Schaumburg (b. 1569) July 16 - Giovanni Biliverti, Italian painter (b. 1585) July 29 - Pope Urban VIII (b. 1568)[14] August 25 - Johann Heinrich Alting, German Lutheran theologian (b. 1583)

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September 4 - Johannes Wtenbogaert, Dutch leader of the Remonstrants (b. 1557) September 7 Guido Bentivoglio, Italian statesman and historian (b. 1563)[16] Francis Quarles, English poet (b. 1592)[17] October 6 - Elisabeth of France, queen of Philip IV of Spain
(b. 1602) October 19 - Johann Friedrich, Count Palatine of Sulzbach-Hilpoltstein (b. 1587) October 30 - Jorge de Cárdenas y Manrique de Lara, Spanish writer (b. 1579) November 20 - Nathaniel Foote, American colonist (b. 1592)
November 24 - Deodat del Monte, Flemish painter, architect (b. 1582) December 20 - Albert IV, Duke of Saxe-Eisenach (from 1640) (b. 1599) December 28 - John Bankes, Attorney General and Chief Justice to King Charles I of England (b. 1589) December 30 - Jan Baptist van
 Helmont, Flemish chemist (b. 1577) ^{\circ} Braddick, Michael J. (2015). The Oxford handbook of the English revolution. Oxford, UK; New York: Condon New York: Longman. p. 223. ISBN 9780582067226. ^{\circ} a b "What Happened In 1644".
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from 1501 to 1600 This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. "16th century" - news · newspapers · books · scholar · JSTOR (September 2022) (Learn how and when to remove this message) Millennia
2nd millennium Centuries 15th century 16th century 17th c
Vespucci (from whose name the word America is derived) and Belgian Gerardus Mercator shows (besides the classical continents Europe, Africa, and Asia) the America sive India Nova', New Guinea, and other islands of Southeast Asia, as well as a hypothetical Arctic continent and a yet undetermined Terra Australis.[1]The 16th century began
with the Julian year 1501 (represented by the Roman numerals MDI) and ended with either the Julian or the Gregorian year 1600 (MDC), depending on the reckoning used (the Gregorian calendar introduced a lapse of 10 days in October 1582).[1] The Renaissance in Italy and Europe saw the emergence of important artists, authors and scientists, and led
to the foundation of important subjects which include accounting and political science. Copernicus proposed the heliocentric universe, which was met with strong resistance, and Tycho Brahe refuted the theory of celestial spheres through observational measurement of the 1572 appearance of a Milky Way supernova. These events directly challenged the
long-held notion of an immutable universe supported by Ptolemy and Aristotle, and led to major revolutions in astronomy, becoming a major figure in the Scientific Revolution in
Europe. Spain and Portugal colonized large parts of Central and South America, followed by France and England in Northern America, followed by France and the Lesser Antilles, Mexico, Peru, and
opened trade across the Pacific Ocean, linking the Americas with the Indies. English and French privateers began to practice persistent theft of Spanish and Portuguese treasures. This era of colonialism established mercantilism as the leading school of economic thought, where the economic system was viewed as a zero-sum game in which any gain by one
party required a loss by another. The mercantilist doctrine encouraged the many intra-European wars of the period and arguably fueled European expansion and imperialism throughout the world until the 19th century or early 20th century. The Reformation in central and northern European wars of the paracy and the Catholic
Church. In England, the British-Italian Alberico Gentili wrote the first book on public international law and divided secularism from canon law and Catholic theology. European politics became dominated by religious conflicts, with the groundwork for the epochal Thirty Years' War being laid towards the end of the century. In the Middle East, the Ottoman
Empire continued to expand, with the sultan taking the title of caliph, while dealing with a resurgent Persia. Iran and Iraq were caught by a major popularity of the Shia sect of Islam under the rule of the Majority-Sunni Muslim world. [2] In the Indian subcontinent
following the defeat of the Delhi Sultanate and Vijayanagara Empire, new powers emerged, the Sur Empire founded by Sher Shah Suri, Deccan sultanates, Rajput states, and the Mughal Empire[3] by Emperor Babur, a direct descendant of Timur and Genghis Khan.[4] His successors Humayun and Akbar, enlarged the empire to include most of South Asia.
Japan suffered a severe civil war at this time, known as the Sengoku period, and emerged from it as a unified nation under Toyotomi Hideyoshi. China was ruled by the Ming dynasty, which was becoming increasingly isolationist, coming into conflict with Japan over the control of Korea as well as Japanese pirates. In Africa, Christianity had begun to spread
in Central Africa and Southern Africa and Southern Africa in the late 19th century, most of Africa was left uncolonized. For timelines of earlier events, see 15th century and Timeline of the Middle Ages. Mona Lisa, by Leonardo da Vinci, c. 1503–1506, one of the world's best-known paintings 1501: Michelangelo returns to his native Florence to
begin work on the statue David. 1501: Safavid dynasty reunifies Iran and rules over it until 1736. Safavids adopt a Shia branch of Islam.[5] 1501: First Battle of Cannanore between the Third Portuguese conflicts in the Indian Ocean.
1502: First reported African slaves in the New World 1502: The Crimean Khanate sacks Sarai in the Golden Horde, ending its existence. 1503: Spain defeats France at the Battle of Cerignola. Considered to be the first battle in history won by gunpowder small arms. 1503: Leonardo da Vinci begins painting the Mona Lisa and completes it three years later
1503: Nostradamus is born on either December 14 or December 14 or December 21. 1504: A period of drought, with famine in all of Spain. 1504: Death of Isabella I of Castile; Joanna of Castile becomes the Queen. 1504: A period of drought, with famine in all of Spain. 1504: A period of drought, with famine in all of Spain. 1504: Death of Isabella I of Castile; Joanna of Castile becomes the Queen. 1504: A period of drought, with famine in all of Spain. 1504: Death of Isabella I of Castile; Joanna of Castile becomes the Queen. 1504: A period of drought, with famine in all of Spain. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: Death of Isabella I of Castile becomes the Queen. 1504: 
Martin Luther enters St. Augustine's Monastery at Erfurt, Germany, on 17 July and begins his journey to instigating the Reformation. 1505: Sultan Trenggono builds the first Muslim kingdom in Java, called Demak, in Indonesia. Many other small kingdoms were established in other islands to fight against Portuguese. Each kingdom introduced local
language as a way of communication and unity. 1506: Leonardo da Vinci completes the Mona Lisa. 1506: King Afonso I of Kongo wins the battle of Cerignola: El Gran Capitan finds the corpse of Louis d'Armagnac, Duke of Nemours 1506: At least two thousand converted Jews
are massacred in a Lisbon riot, Portugal. 1506: Christopher Columbus dies in Valladolid, Spain. 1506: Poland is invaded by Tatars from the Crimean Khanate. 1507: The first recorded epidemic of smallpox in the New World on the island of Hispaniola. It devastates the native Taino population.[6] 1507: Afonso de Albuquerque conquered Hormuz and
Muscat, among other bases in the Persian Gulf, taking control of the region at the entrance of the Gulf. 1508: The Christian-Islamic power struggle in Europe and West Asia spills over into the Indian Ocean as Battle of Chaul during the Portuguese-Mamluk War 1508-1512: Michelangelo paints the Persian Gulf, taking control of the region at the entrance of the Gulf. 1508: The Christian-Islamic power struggle in Europe and West Asia spills over into the Indian Ocean as Battle of Chaul during the Portuguese-Mamluk War 1508-1512: Michelangelo paints the Portuguese-
Sultan of Gujarat, the Mamlûk Burji Sultanate of Egypt, and the Zamorin of Calicut with support of the Republic of Venice and the Indian Ocean. 1509: The Portuguese king sends Diogo Lopes de Sequeira to find Malacca, the eastern terminus of Asian
trade. After initially receiving Sequeira, Sultan Mahmud Shah captures and/or kills several of his men and attempts an assault on the four Portuguese ships, which escape.[7] The Javanese fleet is also destroyed in Malacca. 1509: Krishnadevaraya ascends the throne of Vijayanagara Empire. Afonso de Albuquerque 1509-1510: The 'great plague' in various
parts of Tudor England.[8] 1510: Afonso de Albuquerque of Portugal conquers Goa in India. 1511: Afonso de Albuquerque of Portugal conquers Malacca, the capital of the Sultanate of Malacca in present-day Malaysia. 1512: Copernicus writes Commentariolus, and proclaims the Sun the capital of the Sultanate of Malacca in present-day Malaysia. 1512: The southern part (historical core)
of the Kingdom of Navarre is invaded by Castile and Aragon. 1512: Qutb Shahi dynasty, founded by Quli Qutb Mulk, rules Golconda Sultanate until 1687. 1512: The first Portuguese exploratory expedition was sent eastward from Malacca (in present-day Malaysia) to search for the 'Spice Islands' (Maluku) led by Francisco Serrão. Serrão is shipwrecked but
struggles on to Hitu (northern Ambon) and wins the favour of the local rulers.[9] 1513: The Portuguese mariner Jorge Álvares lands at Macau, China, during the Ming dynasty. 1513: The Portuguese mariner Jorge Álvares lands at Macau, China, during the Ming dynasty. 1513: Henry VIII defeats the French at the Battle of Flodden Field in which
invading Scots are defeated by Henry VIII's forces. 1513: Sultan Selim I ("The Grim") orders the massacre of Spain arrives at the Pacific Ocean (which he called Mar del Sur) across the Isthmus of Panama. He was the first European to do so. 1514: The Battle of
Orsha halts Muscovy's expansion into Eastern Europe. 1514: Dózsa rebellion (peasant revolt) in Hungary. Martin Luther initiated the Reformation with his Ninety-five Theses in 1517. 1514: The Battle of Chaldiran, the Ottoman Empire gains decisive victory against Safavid dynasty. 1515: Ascension of France as King of France following the
death of Louis XII. 1515: The Ottoman Empire wrests Eastern Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans defeat the Mamluks and gain control of Egypt, Arabia, and the Levant. 1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans defeat the Mamluks and gain control of Egypt, Arabia, and the Levant. 1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks and the Ramadanids. 1516-1517: The Ottomans conquer the last beyliks and the Ramada
England.[10] 1517: The Reformation begins when Martin Luther posts his Ninety-five Theses in Saxony. 1518: The Treaty of London was a non-aggression pact between the major European nations. The signatories were Burgundy, France, England, the Holy Roman Empire, the Netherlands, the Papal States and Spain, all of whom agreed not to attack one
another and to come to the aid of any that were under attack. 1518: Mir Chakar Khan Rind leaves Baluchistan and settles in Punjab. 1518: Leo Africanus, also known as al-Hasan ibn Muhammad al-Wazzan al-Fasi, an Andalusian Berber diplomat who is best known for his book Descrittione dell'Africa (Description of Africa), is captured by Spanish pirates; he
is taken to Rome and presented to Pope Leo X. 1518: The dancing plague of 1518 begins in Strasbourg, lasting for about one month. 1519: Leonardo da Vinci dies of natural causes on May 2. Europe at the time of the accession of Charles V in 1519 in 1519: Wang Yangming, the Chinese philosopher and governor of Jiangxi province, describes his intent to use
the firepower of the fo-lang-ji, a breech-loading Portuguese culverin, in order to suppress the rebellion of Prince Zhu Chenhao. 1519: Barbary pirates led by Hayreddin Barbarossa, a Turk appointed to ruling position in Algiers by the Ottoman Empire, raid Provence and Toulon in southern France. 1519: Death of Emperor Maximilian; Charles I of Austria,
Spain, and the Low Countries becomes Emperor of Holy Roman Empire as Charles V, Holy Roman Emp
expedition that circumnavigated the globe in 1519-1522. 1520-1566: The reign of Suleiman the Magnificent marks the zenith of the Ottoman Empire. 1520: The first European diplomatic mission to Ethiopia, sent by the Portuguese, arrives at Massawa 9 April, and reaches the imperial encampment of Emperor Dawit II in Shewa 9 October. 1520:
Vijayanagara Empire forces under Krishnadevaraya defeat the Adil Shahi under at the Battle of Raichur 1520: Sultan Ali Mughayat Shah of Aceh begins an expansionist campaign capturing Daya on the west Sumatran coast (in present-day Indonesia), and the pepper and gold producing lands on the east coast. 1520: The Portuguese established a trading
post in the village of Lamakera on the eastern side of Solor (in present-day Indonesia) as a transit harbour between Maluku and Malacca. 1521: Belgrade (in present-day Serbia) is captured by the Ottoman Empire. 1521: Belgrade (in present-day Serbia) is captured by the Ottoman Empire. 1521: After building fortifications at Tuen Mun, the Portuguese attempt to invade Ming dynasty China, but are expelled by Chinese naval
forces. 1521: Philippines encountered by Ferdinand Magellan. He was later killed in the Battle of Mactan in central Philippines in the same year. 1521: Jiajing Emperor ascended the throne of Ming dynasty, China. 1521: November, Ferdinand Magellan's expedition reaches Maluku (in present-day Indonesia) and after trade with Ternate returns to Europe
with a load of cloves. 1521: Pati Unus leads the invasion of Malacca (in present-day Malaysia) against the Portuguese occupation. Pati Unus was killed in this battle, and was succeeded by his brother, sultan Trenggana. 1522: Rhodes falls to the Ottomans of Suleiman the Magnificent.[11]Sack of Rome of 1527 by Charles V's forces (painting by Johannes
Lingelbach) 1522: The Portuguese ally themselves with the rulers of Ternate (in present-day Indonesia) and begin construction of a fort.[9] 1522: August, Luso-Sundanese Treaty signed between Portuguese permit to build fortress in Sunda Kelapa. 1523: Sweden gains independence from the Kalmar Union. 1523: The
Cacao bean is introduced to Spain by Hernán Cortés 1524-1525: German Peasants' War in the Holy Roman Empire. 1524: Giovanni da Verrazzano is the first European to explore the Atlantic coast of North America between South Carolina and Newfoundland. 1524: Ismail I, the founder of Safavid dynasty, dies and Tahmasp I becomes king. Gun-wielding
Ottoman Janissaries and defending Knights of Saint John at the siege of Rhodes in 1522, from an Ottoman manuscript 1525: Timurid Empire forces under Babur defeat the Lodi dynasty at the First Battle of Panipat, end of the Delhi Sultanate. 1526: The
Ottomans defeat the Kingdom of Hungary at the Battle of Mohács. 1527: Sack of Rome with Pope Clement VII escaping and the Swiss Guards defending the Vatican being killed. The sack of the city of Rome with Pope Clement VII escaping and the Swiss Guards defending the Vatican being killed. The sack of the city of Rome with Pope Clement VII escaping and the Swiss Guards defending the Vatican being killed. The sack of the city of Rome with Pope Clement VII escaping and the Swiss Guards defending the Vatican being killed.
last ruler of Majapahit falls from power. This state (located in present-day Indonesia) was finally extinguished at the hands of the Demak. A large number of courtiers, artisans, priests, and members of the royalty moved east to the island of Bali; however, the power and the seat of government transferred to Demak under the leadership of Pangeran, later
Sultan Fatah. 1527: June 22, The Javanese Prince Fatahillah of the Cirebon Sultanate successfully defeated the Portuguese armed forces at the site of the Sunda Kelapa Harbor. The city was then renamed Jayakarta, meaning "a glorious victory." This eventful day came to be acknowledged as Jakarta's Founding Anniversary. 1527: Mughal Empire forces
defeat the Rajput led by Rana Sanga of Mewar at the Battle of Khanwa 1529: Treaty of Zaragoza defined the antimeridian of Tordesillas attributing the Moluccas to Portugal and Philippines to Spain. 1529: Imam Ahmad Gurey defeats the Ethiopian Emperor Dawit II in the Battle of
Shimbra Kure, the opening clash of the Ethiopian-Adal War. Spanish conquistadors with their Tlaxcallan allies fighting against the Otomies of Metztitlan in present-day Mexico, a 16th-century codex 1531-1532: The Church of England breaks away from the Catholic Church and recognizes King Henry VIII as the head of the Church. 1531: The Inca Civil War
is fought between the two brothers, Atahualpa and Huáscar. 1532: Francisco Pizarro leads the Spanish conquest of the Inca Empire. 1532: Foundation of São Vicente, the first permanent Portuguese settlement in the Americas. 1533: Anne Boleyn becomes Queen of England. 1533: Elizabeth Tudor is born. 1534: Jacques Cartier claims Canada for France.
1534: The Ottomans capture Baghdad from the Safavids. 1535: The Münster Rebellion, an attempt of radical, millennialist, Anabaptists to establish a theocracy, ends in bloodshed. 1535: The Portuguese in Ternate depose Sultan Tabariji (or Tabarija)
and send him to Portuguese Goa where he converts to Christianity and bequeaths his Portuguese godfather Jordao de Freitas the island of Ambon.[12] Hairun becomes the next sultan. 1536: Catherine of Aragon dies in Kimbolton Castle, in England, Anne
Boleyn is beheaded for adultery and treason. 1536: Establishment of the Inquisition in Portugal. 1536: Foundation of Buenos Aires (in present-day Argentina) by Pedro de Mendoza. 1537: The Portuguese establish Recife in Pernambuco, north-east of Brazil. 1537: William Tyndale's partial translation of the Bible into English is published, which would
eventually be incorporated into the King James Bible. 1538: Gonzalo Jiménez de Quesada founds Bogotá. 1538: Gonzalo Jiménez de Quesada founds Bogotá. 1538: Spanish-Venetian fleet is defeated by the Ottoman Turks at the Battle of Preveza. 1539: Hernando de Soto explores inland North America. Nicolaus Copernicus 1540: The Society of Jesus, or the Jesuits, is founded by Ignatius of Loyola and six
companions with the approval of Pope Paul III. 1540: Sher Shah Suri founds the Suri dynasty in South Asia, an ethnic Pashtun (Pathan) of the house of Sur, who supplanted the Mughal dynasty as rulers of North India during the reign of the relatively ineffectual second Mughal emperor Humayun. Sher Shah Suri decisively defeats Humayun in the Battle of
Bilgram (May 17, 1540). 1541: Pedro de Valdivia founds Santiago in Chile. 1541: Am Algerian military campaign by Charles V of Spain (Habsburg) is unsuccessful. 1541: Amazon River is encountered and explored by Francisco de Orellana. 1541: Sahib I Giray of
Crimea invades Russia. 1542: The Italian War of 1542-1546 War resumes between Francis I of France and Emperor Charles V. This time Henry VIII is allied with the Emperor, while James V of Scotland and Sultan Suleiman I are allied with the French. 1542: Akbar The Great is born in the Rajput Umarkot Fort 1542: Spanish explorer Ruy López de
Villalobos named the island of Samar and Leyte Las Islas Filipinas honoring Philip II of Spain and became the official name of the archipelago. 1543: Ethiopian/Portuguese troops defeat this battle. 1543: Copernicus publishes his theory that the Earth and
the other planets revolve around the Sun 1543: The Nanban trade period begins after Portuguese traders make contact with Japan. 1544: Battle of the Shirts in Scotland. The Frasers and Macdonalds of Clan Ranald fight over a
disputed chiefship; reportedly, 5 Frasers and 8 Macdonalds survive. 1545: Songhai forces sack the Malian capital of Niani 1545: The Council of Trent meets for the first time in Trent (in northern Italy). 1546: Michelangelo Buonarroti is made chief architect of St. Peter's Basilica. 1546: Francis Xavier works among the peoples of Ambon, Ternate and
Morotai (Moro) laying the foundations for a permanent mission. (to 1547) 1547: Henry VIII dies in the Palace of Whitehall on 28 January at the age of 52. 1547: Edward VI becomes King of England and Ireland on 28 January and is crowned on 20 February at the age of 9.
1547: Emperor Charles V decisively dismantles the Schmalkaldic League at the Battle of Mühlberg. 1547: Grand Prince Ivan the Terrible is crowned tsar of (All) Russia, thenceforth becoming the first Russian tsar. 1548: Battle of Wedahara: Firearms are used for the first time on the battlefield in Japan, and Takeda Shingen is defeated by Murakami
Yoshikiyo. 1548: Askia Daoud, who reigned from 1548 to 1583, establishes public libraries in Timbuktu (in present-day Mali). 1548: The Ming dynasty government of China issues a decree banning all foreign trade and closes down all seaports along the coast; these Hai jin laws came during the Wokou wars with Japanese pirates. 1549: Tomé de Sousa
establishes Salvador in Bahia, north-east of Brazil. 1549: Arya Penangsang with the support of his teacher, Sunan Kudus, avenges the death of Raden Kikin by sending an envoy named Rangkud to kill Sunan Prawoto by Keris Kyai Satan Kober (in present-day Indonesia). The Islamic gunpowder empires: Mughal Army artillerymen during the reign of
Jalaluddin Akbar 1550: The architect Mimar Sinan builds the Süleymaniye Mosque in Istanbul. 1550: Mongols led by Altan Khan invade China and besiege Beijing. 1550-1551: Valladolid debate concerning the human rights of the Americas. 1551: Fifth outbreak of sweating sickness in England. John Caius of Shrewsbury writes the
first full contemporary account of the symptoms of the disease. 1551: North African pirates enslave the entire population of the Maltese island Gozo, between 5,000 and 6,000, sending them to Libya. 1552: Russia conquers the Khanate of Kazan in central Asia. 1552: Jesuit China Mission, Francis Xavier dies. 1553: Mary Tudor becomes the first queen
regnant of England and restores the Church of England under Papal authority. 1553: The Portuguese found a settlement at Macau. 1554: Princess Elizabeth is imprisoned in the Tower of London upon the orders of Mary I for suspicion of being involved in
the Wyatt rebellion. 1555: The Muscovy Company is the first major English joint stock trading company. 1556: Publication in Venice of Delle Navigiationi et Viaggi (terzo volume) by Giovanni Battista Ramusio, secretary of Council of Ten, with plan La Terra de Hochelaga, an illustration of the Hochelaga.[13] 1556: The Shaanxi earthquake in China is
history's deadliest known earthquake during the Ming dynasty. 1556: Russia conquers the Astrakhan Khanate. 1556-1605: During his reign, Akbar expands the Mughal Empire in a series of conquests (in the Indian
subcontinent). Political map of the world in 1556 1556: Mir Chakar Khan Rind captures Delhi with Humayun. 1556: Pomponio Algerio, radical theologian, is executed by boiling in oil as part of the Roman Inquisition. 1557: Habsburg Spain declares bankruptcy. Philip II of Spain had to declare four state bankruptcies in 1557, 1560, 1575 and 1596. 1557: The
Portuguese settle in Macau (on the western side of the Pearl River Delta across from present-day Hong Kong). 1558: Elizabeth Tudor becomes Queen Elizabeth I at age 25. 1558–1603: The Elizabethan era is considered the height of the English Renaissance. 1558-
1583: Livonian War between Poland, Grand Principality of Lithuania, Sweden, Denmark and Russia. 1558: After 200 years, the Kingdom of England loses Calais to France. 1559: With the Peace of Cateau Cambrésis, the Italian Wars conclude. 1559: Sultan Hairun of Ternate (in present-day Indonesia) protests the Portuguese's Christianisation activities in
his lands. Hostilities between Ternate and the Portuguese. The Mughal Emperor Akbar shoots the Rajput warrior Jaimal during the Battle of Djerba. 1560: By winning the Battle of Okehazama, Oda Nobunaga becomes
                  re-eminent warlords of Japan. 1560: Jeanne d'Albret declares Calvinism the official religion of Navarre. 1560: Lazarus Church, Macau 1561: Sir Francis Bacon is born in London. 1561: Guido de Bres draws up the Belgic Confession of
Protestant faith. 1562: Mughal emperor Akbar reconciles the Muslim and Hindu factions by marrying into the powerful Rajput Hindu caste. 1562-1598: French Wars of Religion. 1562: Portuguese Dominican priests build a palm-trunk fortress
which Javanese Muslims burned down the following year. The fort was rebuilt from more durable materials and the Dominicans commenced the Christianisation of the local population. [12] 1563: Plaque outbreak claimed 80,000 people in Elizabethan England. In London alone, over 20,000 people died of the disease. 1564: Galileo Galilei born on February
15 1564: William Shakespeare baptized 26 April 1565: Deccan sultanates defeat the Vijayanagara Empire at the Battle of Talikota. 1565: Mir Chakar Khan Rind dies at aged 97. 1565: Estácio de Sá establishes Rio de Janeiro in Brazil. 1565: Miguel López de
Legazpi establishes in Cebu the first Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Spanish settlement in the Philippines starting a period of Sp
Thomas Gresham. 1566: Suleiman the Magnificent, ruler of the Ottoman Empire, dies on September 7, during the battle of Szigetvar. Siege of Valenciennes during the Dutch War of Independence in 1567 1566-1648: Eighty Years' War between Spain and the Netherlands. 1566: Da le Balle Contrade d'Oriente, composed by Cipriano de Rore. 1567: After 45
years' reign, Jiajing Emperor died in the Forbidden City, Longqing Emperor ascended the throne of Ming dynasty. 1567: Mary, Queen of Scots, is imprisoned by Elizabeth I. 1568: The Transylvanian Diet, under the patronage of the prince John Sigismund Zápolva, the former king of Hungary, inspired by the teachings of Ferenc Dávid, the founder of the
Unitarian Church of Transylvania, promulgates the Edict of Torda, the first law of freedom of religion and of conscience in the World. 1568-1571: Morisco Revolt in Spain. 1568-1600: The Azuchi-Momoyama period in Japan. 1568: Hadiwijaya sent his adopted son and son in-law Sutawijaya, who would later become the first ruler of the Mataram dynasty of
Indonesia, to kill Arya Penangsang. 1569: Rising of the North in England. 1569: Reace treaty signed by Sultan Hairun of Ternate and Governor Lopez De Mesquita of Portugal. The Battle
of Lepanto 1570: Ivan the Terrible, tsar of Russia, orders the massacre of inhabitants of Novgorod. 1570: Pope Pius V issues Regnans in Excelsis, a papal bull excommunicating all who obeyed Elizabeth I and calling on all Catholics to rebel against her. 1570: Sultan Hairun of Ternate (in present-day Indonesia) is killed by the Portuguese.[12] Babullah
becomes the next Sultan. 1570: 20,000 inhabitants of Nicosia in Cyprus were massacred and every church, public building, and palace was looted. Cyprus to the Ottoman Turks, responding to the fall of Cyprus to the Ottomans. 1571: The
Spanish-led Holy League navy destroys the Ottoman Empire navy at the Battle of Lepanto. 1571: American Indians kill Spanish missionaries in what would later be Jamestown, Virginia. 1571: Spanish conquistador Miguel López de Legazpi establishes Manila, Philippines as
the capital of the Spanish East Indies. 1572: Brielle is taken from Habsburg Spain by Protestant Watergeuzen in the Capture of Brielle, in the Eighty Years' War. 1572: Spanish conquistadores apprehend the last Inca leader Tupak Amaru at Vilcabamba, Peru, and execute him in Cuzco. 1572: Jeanne d'Albret dies aged 43 and is succeeded by Henry of
Navarre. 1572: Catherine de' Medici instigates the St. Bartholomew's Day massacre which takes the lives of Protestant leader Gaspard de Coligny and thousands of Luís Vaz de Camões, three years after the author returned from
the East.[14] 1572: The 9 years old Taizi, Zhu Yijun ascended the throne of Ming dynasty, known as Wanli Emperor. 1573: After heavy losses on both sides the siege of Haarlem ends in a Spanish victory. St. Bartholomew's Day massacre of French Protestants 1574: in the Eighty Years' War the capital of Zeeland, Middelburg declares for the Protestants.
1574: After a siege of 4 months the siege of 4 months the siege of Leiden ends in a comprehensive Dutch rebel victory. 1575: Oda Nobunaga finally captures Nagashima fortress. 1576: Tahmasp I, Safavid shah, dies. 1576: The Battle of Haldighati is fought between the ruler of
Mewar, Maharana Pratap and the Mughal Empire's forces under Emperor Akbar led by Raja Man Singh. 1576: Sack of Antwerp by badly paid Spanish soldiers. 1577-1580: Francis Drake circles the world. 1577: Ki Ageng Pemanahan built his palace in Pasargede or Kotagede. 1578: King Sebastian of Portugal is killed at the Battle of Alcazarquivir. 1578:
The Portuguese establish a fort on Tidore but the main centre for Portuguese activities in Maluku becomes Ambon.[12] 1578: Sonam Gyatso is conferred the title of Dalai Lama by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas, Sonam Gyatso becomes the third Dalai Lama by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas, Sonam Gyatso is conferred the title of Dalai Lama by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas, Sonam Gyatso is conferred the title of Dalai Lama by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas, Sonam Gyatso is conferred the title of Dalai Lama by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas, Sonam Gyatso is conferred the title of Dalai Lama by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas, Sonam Gyatso is conferred the title of Dalai Lama by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas by Tumed Mongol ruler, Altan Khan.
General Francisco de Sande officially declared war against Brunei in 1578, starting the Castilian War of 1578. 1579: The Union of Utrecht unifies the southern Netherlands, a foundation for the later states of the Spanish Netherlands, the Austrian
Netherlands and Belgium. The Irish Gaelic chieftain's feast, from The Image of Ireland 1579: The British navigator Sir Francis Drake passes through Maluku and transit in Ternate on his circumnavigation of the world. The Portuguese establish a fort on Tidore but the main centre for Portuguese activities in Maluku becomes Ambon. [16] The fall of Spanish
Armada 1580: Drake's royal reception after his attacks on Spanish possessions influences Philip II. The struggle for the throne of Portugal ends the Portuguese Empire. The Spanish and Portuguese crowns are united
for 60 years, i.e. until 1640. 1580-1587: Nagasaki comes under control of the Jesuits. 1581: Dutch Act of Abjuration, declaring abjuring allegiance to Philip II of Spain. 1581: Bayinnaung dies at the age of 65. 1582: Oda Nobunaga commits seppuku during the Honnō-ji Incident coup by his general, Akechi Mitsuhide. 1582: Pope Gregory XIII issues the
Gregorian calendar. The last day of the Julian calendar was Thursday, 4 October 1582 and this was followed by the first day of the Stroganovs. 1583: Denmark builds the world's first theme park, Bakken. 1583: Death of Sultan Babullah
of Ternate. 1584-1585: After the siege of Antwerp, many of its merchants flee to Amsterdam. According to Luc-Normand Tellier, "At its peak, between 1510 and 1557, Antwerp concentrated about 40% of the world trade...It is estimated that the port of Antwerp was earning the Spanish crown seven times more revenues than the Americas."[17] 1584: Ki
Ageng Pemanahan died. Sultan Pajang raised Sutawijaya, son of Ki Ageng Pemanahan as the new ruler in Mataram, titled "Loring Ngabehi Market" (because of his home in the market). 1585: Akbar annexes Kashmir and adds it to the Kabul SubahPortuguese fusta in India from a book by Jan Huygen van Linschoten 1585: Colony at Roanoke
founded in North America. 1585-1604: The Anglo-Spanish War is fought on both sides of the Atlantic. 1587: Troops that would invade Pajang Mataram Sultanate storm ravaged the eruption of Mount Merapi. Sutawijaya and his men
survived. 1588: Mataram into the kingdom with Sutawijaya as Sultan, titled "Senapati Ingalaga Sayidin Panatagama" means the warlord and cleric Manager Religious Life. 1588: England repulses the English Armada. 1589: Spain repulses the English
Mughal Azam Akbar, Mughal miniature 1590: Siege of Odawara: the Go-Hojo clan surrender to Toyotomi Hideyoshi, and Japan is unified. 1591: In Mali, Moroccan forces of the Sultan Ahmad al-Mansur led by Judar Pasha defeat the Songhai Empire at the Battle of Tondibi. 1592-1593: John
Stow reports 10,675 plague deaths in London, a city of approximately 200,000 people. 1592-1598: Korea, with the help of Ming dynasty China, repels two Japanese invasions. 1594: St. Paul's College, Macau, founded by Alessandro Valignano. 1595: First Dutch expedition
to Indonesia sets sail for the East Indies with two hundred and forty-nine men and sixty-four cannons led by Cornelis de Houtman. [18] 1596: Birth of René Descartes. 1596: June, de Houtman's expedition reaches Banten the main pepper port of West Java where they clash with both the Portuguese and Indonesians. It then sails east along the north coast of
Java losing twelve crew to a Javanese attack at Sidayu and killing a local ruler in Madura. [18] 1597: Romeo and Juliet is published. 1597: Cornelis de Houtman's expedition returns to the Netherlands with enough spices to make a considerable profit. [18] 1598: The Edict of Nantes ends the French Wars of Religion. 1598: Abbas I moves Safavids capital from
Qazvin to Isfahan in 1598. 1598-1613: Russia descends into anarchy during the Time of Troubles. 1598: The Portuguese require an armada of 90 ships to put down a Solorese uprising.[12] (to 1599) 1598: The Province of Santa Fe
de Nuevo México is established in Northern New Spain. The region would later become a territory of Mexico, the New Mexico, the New Mexico Territory in the United States, and the US State of New Mexico Territory in the United States, and the US State of New Mexico. 1598: The van Neck expedition returns to
Europe. The expedition makes a 400 per cent profit.[18] (to 1600) 1599: March, Leaving Europe the previous year, a fleet of eight ships under Jacob van Neck was the first Dutch fleet to reach the 'Spice Islands' of Maluku.[18] 1600: Battle
of Sekigahara in Japan. End of the Warring States period and beginning of the Edo period. 1600: The Portuguese win a major naval battle in the bay of Ambon. [19] Later in the year, the Dutch would have the sole right to purchase spices from Hitu. [19] 1600:
Elizabeth I grants a charter to the British East India Company beginning the English advance in Asia. 1600: Michael the Brave unifies the three principalities: Wallachia, Moldavia and Transylvania after the Battle of Şelimbăr from 1599. For later events, see Timeline of the 17th century. Polybius' The Histories translated into Italian, English, German and
French.[20] Mississippian culture disappears. Medallion rug, variant Star Ushak style, Anatolia (modern Turkey), is made. It is now kept at the Saint Louis Art Museum. Hernan Cortes (1485-1547) Henry VIII, (1491-1547) King of England and Ireland Don Fernando Álvarez de Toledo (1507-1582) Suleiman the Magnificent, Sultan of the Ottoman Empire
(1520-1566) Ivan IV the Terrible (1530-1584) Oda Nobunaga (1534-1582) Sir Francis Drake (c. 1540 - 1596) Alberico Gentili, (1552-1608) the Father of international law Philip II of Spain, King of Spain,
plants, animals and diseases to the Old and New Worlds. Introduction of the spinning wheel revolutionizes textile production in Europe. The letter J is introduced into the English alphabet. 1500: First portable watch is created by Peter Henlein of Germany. The Iberian Union in 1598, under Philip II, King of Spain and Portugal 1513: Juan Ponce de León
sights Florida and Vasco Núñez de Balboa sights the eastern edge of the Pacific Ocean. 1519-1522: Ferdinand Magellan and Juan Sebastián Elcano lead the first circumnavigation of the world. 1519-1540: In America, Hernando de Soto expeditions map the Gulf of Mexico coastline and bays. 1525: Modern square root symbol (1) 1540: Francisco Vásquez de
Coronado sights the Grand Canyon. 1541-42: Francisco de Orellana sails the length of the Amazon River. 1542-43: Firearms are introduced into Japan by the Portuguese. 1543: Copernicus publishes his theory that the Earth and the other planets revolve around the Sun 1545: Theory of complex numbers is first developed by Gerolamo Cardano of Italy.
1558: Camera obscura is first used in Europe by Giambattista della Porta of Italy. 1559-1562: Spanish settlements in Alabama/Florida and Georgia confirm dangers of hurricanes and local native warring tribes. 1565: Spanish settlements in Alabama/Florida and Georgia confirm dangers of hurricanes and local native warring tribes. 1565: Spanish settlements in Alabama/Florida and Georgia confirm dangers of hurricanes and local native warring tribes.
wooden holder) by Conrad Gesner. Modernized in 1812. 1568: Gerardus Mercator creates the first Mercator projection map. 1572: Supernova SN 1572 is observed by Tycho Brahe in the Milky Way. 1582: Gregorian calendar is introduced in Europe by Pope Gregory XIII and adopted by Catholic countries. c. 1583: Galileo Galilei of Pisa, Italy identifies the
constant swing of a pendulum, leading to development of reliable timekeepers. 1585: earliest known reference to the 'sailing carriage' in China. 1589: William Lee invents the stocking frame. 1591: First flush toilet is introduced by Sir John Harrington of England, the design published under the title 'The Metamorphosis of Ajax'. 1593: Galileo Galilei invents
a thermometer. 1596: William Barents discovers Spitsbergen. 1597: Opera in Florence by Jacopo Peri. Entertainment in the 16th century ^ a b Modern reference works on the period tend to follow the introduction of the Gregorian calendar for all dates from
1582 Oct 15 onwards. Before that date, the Julian calendar is used." For dates after 15 October 1582, care must be taken to avoid confusion of the two styles. ^ de Vries, Jan (14 September 2009). "The limits of globalization in the early modern world". The Economic History Review. 63 (3): 710-733. CiteSeerX 10.1.1.186.2862. doi:10.1111/j.1468-
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1665". Archived from the original on 2009-05-08. Retrieved 2009-04-25. ^ a b Ricklefs (1991), page 24 ^ The Sweating Sickness. Story of London.. Accessed 2009-04-25. Archived 2009-05-08. ^ a b c d e Ricklefs (1991), page 25 ^ "La
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d e f Ricklefs (1991), page 27 ^ a b Ricklefs (1991), page 28 ^ Polybius: The Rise Of The Roman Empire, Page 36, Penguin, 1979. Langer, William. An Encyclopedia of World History (5th ed. 1973); highly detailed outline of events online free Media related to 16th century at Wikimedia Commons Timelines of 16th century events, science, culture and
persons Retrieved from 4 The following pages link to 16th century External tools (link count transclusion count sorted list) See help page for transcluding these entries Showing 50 items. View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500)Bagpipes (links | edit) List of decades, centuries, and millennia (links | edit) Fashion (links | edit) Giovanni
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(previous 50 | next 50) (20 | 50 | 100 | 250 | 500) Retrieved from "WhatLinksHere/16th century" In order to achieve complex roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the characteristic equation: Ay" + By' + Cy = 0 Then we look at the roots of the roo
should be: \lambda \pm \mu i We refer back to the characteristic equation, we then assume that all the solution to the differential equation will be: y(t) = e^{(\chi + \mu)t} Since these two functions are still in complex form, and we started the differential equation
with real numbers. It would best if our solution is also real numbers. In order to transform the complex solution, we need to use the Euler's Formula is: e^{(-i\theta)} = \cos(-i\theta) + i\sin(-i\theta) = \cos(-i\theta) + i\sin(-i\theta) Now we split up both of the solutions into two parts one with real
exponent and one with an imaginary exponent. Afterwards, we then applied Euler's Formula. y1(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin(\mu t)] y2(t) = e^{(\lambda t)} [\cos(\mu t) + i\sin
c1y1(t) + c2y2(t) y1(t) + y2(t) = 2e^{(\lambda t)} cos(\mu t) y1(t) + y2(t) = 2e^{(\lambda t)} cos(\mu t) y1(t) + y2(t) = e^{(\lambda t)} y1(t) + y2(t) = e^{(\lambda t)}
real solution by dividing it by 2i. c1 = \frac{1}{2}i c2 = -\frac{1}{2}i The second solutions: u(t) = e^{(\lambda t)} sin(\mu t) These two real solutions is also a general solution. So if the roots of the characteristic equation result in r1,2 = \lambda \pm \mu i, the general solution
to this would be: y(t) = c1 e^{(\lambda t)} cos(\mu t) + c2 e^{(\lambda t)} cos(\mu t) + c2 e^{(\lambda t)} cos(2t) + c2 sin(2t)] + c2 cos(2t)] + c2 cos(2t)] + c2 cos(2t)] We use the initial values to find the
constants. y(0) = 1 We substitute all the t's with 0's and set it to equal 1. y(0) = e^{(5(0))[c1 \cos(2(0))]} + e^{(5(0
Solution: y = e^(5t)[cos(2t) - sin(2t)] If you still do not understand this study guide you may go visit these websites or you can personally ask me, they go into more detail solving the differential equation of complex root solutions with characteristic equation. Thank you. Videos from Khan Academy Part I Part II Part III
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