


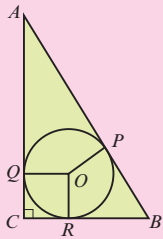
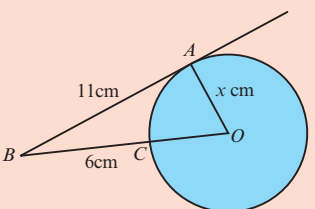


SUN 日	MON 一	TUE 二	WED 三	THU 四	FRI 五	SAT 六
<div><p>An Original Dance</p><p>An chaotic variation on that piece</p><p>Source: http://www.cs.colorado.edu/~lipb/chaotic-dance.html</p></div>	<div>Find the remainder when 6^{1997} is divided by 5.</div> <div>1 十六</div>	<div>If $4^a = 25^b = 10$, find $\frac{1}{a} + \frac{1}{b}$.</div> <div>2 十七</div>	<div>Birthday of Georg Ferdinand Ludwig Philipp Cantor. Cantor's diagonal argument shows that the points of a line are not countable. More generally, Cantor's Theorem states that no function from a set to its power set can possibly be surjective, which establishes an infinite sequence of increasing infinities.</div> <div>3 十八</div>	<div>一個圓心為 O 的圓內切於直角三角形中，$\angle ACB = 90^\circ$，$AB = (3x - 4)$ cm，$BC = (x + 4)$ cm 及 $CA = 2x$ cm。求圓半徑的長度。</div> <div></div> <div>4 十九</div>	<div>Let $S = 1 + \frac{1}{2}(\frac{9}{25}) + \frac{1}{2} \cdot \frac{3}{4}(\frac{9}{25})^2 + \frac{1}{2} \cdot \frac{3}{4} \cdot \frac{5}{6}(\frac{9}{25})^3 + \dots$, find $4S$.</div> <div>5 二十</div>	<div>Find the HCF of 387048 and 549030.</div> <div>6 驚蟄</div>
<div>In the figure, AB is a tangent to the circle, with centre O. Given that $AB = 11$cm, $BC = 6$ cm and $OA = x$ cm, find x (Correct to the nearest integer).</div> <div></div> <div>7 廿二</div>	<div>Find the sum of the roots of the equation $(x^2 - 4x)^2 + 5(x^2 - 4x) + 4 = 0$.</div> <div>8 廿三</div>	<div>Solve x for $x + 2\sqrt{x} + 10 = 25$.</div> <div>9 廿四</div>	<div>父母子女年齡總和是 96 歲，母比父少 4 歲，子的歲數恰好是父的 $\frac{1}{7}$，女的歲數比父的 $\frac{1}{6}$ 還多 3 歲，求女的歲數。</div> <div>10 廿五</div>	<div>Find $\lim_{x \rightarrow 0} \frac{\tan(11x)}{x}$.</div> <div>11 廿六</div>	<div>Using all the letters from the word “freeze”, how many different arrangements of letters are there if the ‘e’s are placed alternately?</div> <div>12 廿七</div>	<div>Let c be a prime number. If $11c + 1$ is the square of a positive integer, find the smallest value of c.</div> <div>13 廿八</div>
<div>Let α and β be the roots of the equation $x^2 - 8x + (R + 1) = 0$. If $\frac{1}{\alpha^2}$ and $\frac{1}{\beta^2}$ are the roots of the equation $225x^2 - mx + 1 = 0$, find the positive value of R.</div> <div>14 廿九</div>	<div>Consider the permutation $P(a_1 a_2 a_3 a_4 a_5 a_6 a_7 a_8 a_9 a_{10}) = (a_5 a_8 a_1 a_{10} a_3 a_2 a_7 a_4 a_9 a_6)$. If P^n is an identity transformation, find n.</div> <div>15 三十</div>	<div>What is the smallest possible perimeter for a rectangle whose area is 16 sq. units?</div> <div>16 二月</div>	<div>Find n if ${}_nC_3 = 40n$.</div> <div>17 初二</div>	<div>把一條繩 3 摺後量度水的深度，有餘 2 米；若把它 4 摺後則欠 3 米，求水的深度。</div> <div>18 初三</div>	<div>There are 5 ways to go from A to B: $W1, W2, W3, W4, W5$; and 4 ways to go from B to C: $Y1, Y2, Y3, Y4$ but $W1Y1$ is forbidden. Find the number of ways of going from A to C via B.</div> <div>19 初四</div>	<div>Find $22 - 22(0.1) + 22(0.1)^2 - 22(0.1)^3 + \dots$</div> <div>20 初五</div>
<div>Birthday of Jean Baptiste Joseph Fourier. Fourier was a French mathematician and physicist best known for initiating the investigations of Fourier series and their applications to problems of heat flow. Fourier transform is also named in his honour. Fourier is also generally credited with the discovery of the greenhouse effect.</div> <div>21 春分</div>	<div>The probability that a seed becomes a plant with flowers is $\frac{1}{6}$. If the probability of obtaining at least one plant with flowers is greater than 0.98, find the minimum number of seeds sown.</div> <div>22 初七</div>	<div>Birthday of Pierre-Simon Laplace. Introduced to mathematics in Caen by Christophe Gadbled and Pierre Le Canu, Laplace was mentored by d’Alembert in Paris. He went on becoming one of the most innovative and influential scientists ever. (Laplacian, Laplace transform, etc.)</div> <div>23 初八</div>	<div>How long is needed to double my principal if the compound interest rate is 3% per annum (In terms of year).</div> <div>24 初九</div>	<div>Let $[x]$ represent the integral part of a real number x. Given that $[3.126] + [3.126 + \frac{1}{8}] + [3.126 + \frac{2}{8}] + \dots + [3.126 + \frac{7}{8}] = P$ find P.</div> <div>25 初十</div>	<div>Consider the sequence 4, 5, 9, 16, x, 39, ... , find x.</div> <div>26 十一</div>	<div>Given that the diagonal of a cube is \sqrt{M} cm. If the volume of the cube is M cm³, find M.</div> <div>27 十二</div>
<div>$(1^3 + 2^3 + 3^3 + \dots + 7^3) = n^2$, find n.</div> <div>28 十三</div>	<div>A point Q moves in the $x - y$ plane such that the difference of its distances from the points $(-30, 0)$ and $(10, 0)$ is always 29. Find the distance between the x-intercept points of the locus of Q.</div> <div>29 十四</div>	<div>A parabola passes through the points $(2, 2\sqrt{30})$, $(2, -2\sqrt{30})$ and the origin. Find the distance between the focus and the directrix of the parabola.</div> <div>30 十五</div>	<div>Birthday of René Descartes. Descartes’ influence in mathematics is apparent: the Cartesian coordinate system allowing geometric shapes to be expressed in algebraic equations being named after him. He is accredited as the father of analytical geometry. Descartes was also one of the key figures in the Scientific Revolution.</div> <div>31 十六</div>	<div>Mathematics to generate choreographic variations</div> <div>In a 1996 paper, Diana Dabby describes a technique that uses a chaotic mapping to generate variations on a musical piece. The software Chaographer by Elizabeth Bradley implements a similar scheme for dance. An original performance piece using six choreographic variations and a human dancer, entitled “Con/cantation: chaotic variations,” premiered in Boston in April of 2007, and has appeared since then in Boulder and Santa Fe. A still shot appears at the top of this page.</div> <div>MARCH 三月 2010</div>		

Produced by: