

SUN 日	MON 一	TUE 二	WED 三	THU 四	FRI 五	SAT 六
<b>JAN</b> 一月 2011	After explaining to a student through various lessons and examples that: $\lim_{x \rightarrow 8^+} \frac{1}{x-8} = \infty$ I tried to check if he really understood that, so I gave him a different example. This was the result: $\lim_{x \rightarrow 3^+} \frac{1}{x-3} = \infty$				1357 <sup>2468</sup> 的個位數字是多少?	<b>1</b> 元旦
Find the value of $D$ such that the line $x + 2y - 3 = 0$ divides the circle $x^2 + y^2 + Dx - 4y - 5 = 0$ into two equal parts.	Find the smallest natural number $n$ such that both $40 - n$ and $40 + n$ are prime.	Birthday of <b>Sir Issac Newton</b> , who was Lucasian Professor of mathematics at Cambridge in 1669, fellow of Royal Society in 1672, Warden (1696) then Master (1699) of the Royal Mint, president of Royal Society from 1703 and knighted in 1705. He published <i>Principia</i> in 1687 and retired from research in 1693.	Find the smallest natural number $n > 1$ such that the product of $n^2 - 1$ , $n^2$ and $n^2 + 1$ is divisible by 100.	Find the area of $\triangle ACE$ if the areas of $\triangle ABE$ and $\triangle CDE$ are $3\text{cm}^2$ and $12\text{cm}^2$ respectively.	Given that $f(x) = x^3 - 19x^2 + 120x - 252 = 0$ has a double root, find the other root.	If $P(X = x) = \frac{1}{3}$ for $x = 1, 2, 3$ , find $\text{Var}(2\sqrt{3}x + \sqrt{2})$ .
<b>2</b> 廿八	<b>3</b> 廿九	<b>4</b> 十二月	<b>5</b> 初二	<b>6</b> 小寒	<b>7</b> 初四	<b>8</b> 初五
A nine-digit number $\overline{2012k2011}$ is divisible by 9. If $k \neq 0$ , what is $k$ ?	If $\lim_{x \rightarrow 0} \frac{\sin kx}{2x} = 5$ , what is $k$ ?	If $\frac{1}{x} = 0.0\dot{9}$ , what is $x$ ?	Find the value of $2\sqrt{3} \times 2\sqrt{3} \times 2\sqrt{3} \times \dots$	將 $ABCDE_{16}$ 轉成二進制後，該數有多少個 1?	How many squares are there in the diagram?	$15^a = 10$ , $15^b = 2$ , $5^{\frac{1}{a-b}} = ?$
<b>9</b> 初六	<b>10</b> 初七	<b>11</b> 初八	<b>12</b> 初九	<b>13</b> 初十	<b>14</b> 十一	<b>15</b> 十二
Find $C \times B$ , if $\begin{array}{r} ABC \\ +) BCA \\ \hline ABBA \end{array}$	Let $a, b, c$ be real numbers. If $\begin{cases} a + b + c = 1 \\ a^2 + b^2 + c^2 = 5 \\ a^3 + b^3 + c^3 = 7 \end{cases}$ find $a^4 + b^4 + c^4$ .	In the diagram, $AB$ is a diameter of a circle with center $O$ . It is given that $\angle AOC = 58^\circ$ , $\angle OCE = 20^\circ$ and $\angle COD = \angle CED$ . Find $\angle EOD$ .	$ABCD$ 為一平行四邊形，若 $\triangle ADE$ , $\triangle ABE$ 及 $\triangle BEC$ 的面積分別為 15、23 及 27，那麼 $\triangle DEC$ 的面積為多少?	若 $X_n = \frac{n}{X_{n-1}}$ ， 求 $\frac{X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8 X_9 X_{10}}{192}$ 的值。	There are 10 "True or False" questions. A boy chooses the answers randomly. If the probability that he answers 5 of them correctly is $\frac{3n}{256}$ , what is $n$ ?	將一個圓形的薄餅隨意切 6 刀，問最多可將薄餅分成多少份?
<b>16</b> 十三	<b>17</b> 十四	<b>18</b> 十五	<b>19</b> 十六	<b>20</b> 大寒	<b>21</b> 十八	<b>22</b> 十九
<b>23</b> 二十	<b>24</b> 廿一	Birthday of <b>Joseph-Louis Lagrange</b> . Lagrange pioneered the calculus of variation (before Euler gave it that name in 1766) and applied it to analytic mechanics. He also invented Lagrange multipliers. In 1794, <i>L'École Polytechnique</i> was founded and Lagrange became its first professor of analysis.	How many trailing zeros are there in the number 110!?	The radius of a sphere is 9 cm. A new sphere is formed by decreasing the radius by 10%, find the percentage decrease in the volume of the sphere. Correct the answer to 2 significant figures.	If $\sum_{r=1}^n C_r^n = 268435455$ , find $n$ .	If $\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \dots + \frac{1}{29 \times 30} = \frac{x}{30}$ , find $x$ .
Find 23 $[\sin 70^\circ (\cos 40^\circ + \sin 10^\circ) + \cos 70^\circ (\cos 10^\circ - \sin 40^\circ)]$ .	Find $k$ if $\frac{\sqrt{k}}{2} = \sqrt{2 + \sqrt{3}} + \sqrt{2 - \sqrt{3}}$	在 $-33$ 與 $x$ 之間共有 15 個等差中項，若全部數的平均值為 $-1$ ，求 $x$ 。	<b>25</b> 廿二	<b>26</b> 廿三	<b>27</b> 廿四	<b>28</b> 廿五
<b>30</b> 廿七	<b>31</b> 廿八	<b>25</b> 廿二	<b>26</b> 廿三	<b>27</b> 廿四	<b>28</b> 廿五	<b>29</b> 廿六

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