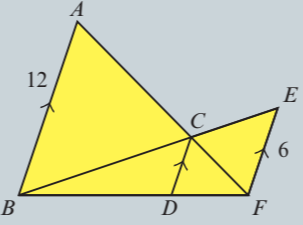
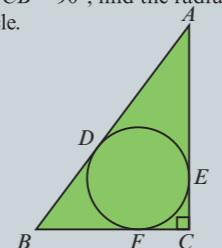
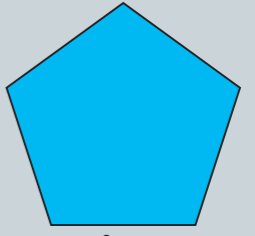
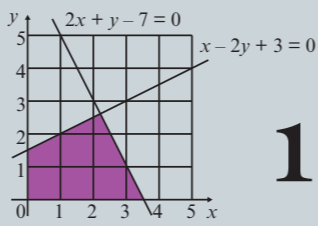
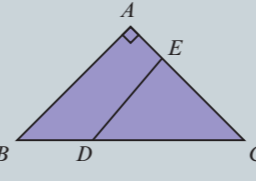
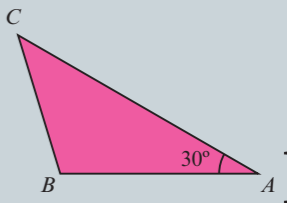
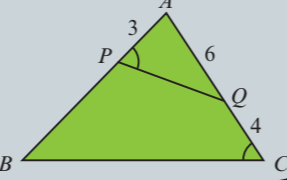
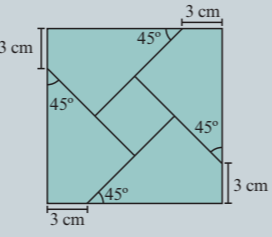
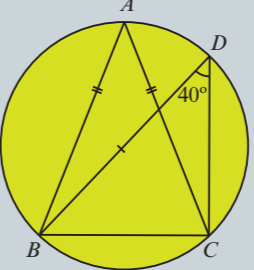
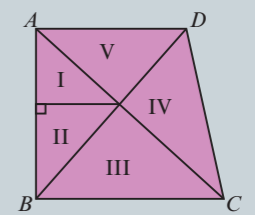
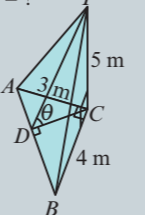
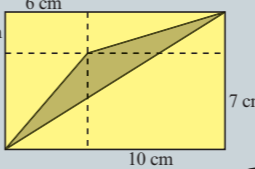
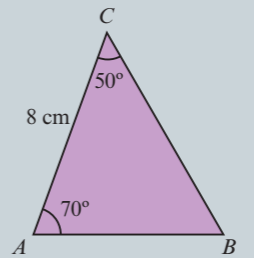
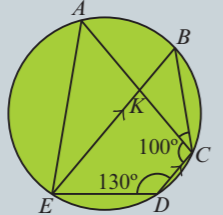



SUN 日	MON 一	TUE 二	WED 三	THU 四	FRI 五	SAT 六
<p>Let $f(x) = ax^2 + bx + c$. When $f(x)$ is divided by $(x - 1)$, the remainder is 10. When $f(x)$ is divided by $(x + 1)$, the remainder is 8. Find the value of b.</p> <p>1 十五</p>	<p>Given $f(x + x^{-1}) = x^4 + x^{-4}$, then $f(2) = ?$</p> <p>2 十六</p>	<p>The daily wages of a man and a boy are in the ratio 2 : 1. In a day a man has to work 8 hours but a boy only 6 hours. The hourly wages of a man and a boy are in the ratio $k : 2$, $k = ?$</p> <p>3 十七</p>	<p>In the figure, $AB \parallel CD \parallel EF$. ACF, BCE and BDF are straight lines. $AB = 12$, $EF = 6$, $CD = ?$</p>  <p>4 十八</p>	<p>If $1^3 + 2^3 + \dots + M^3 = (3M)^2$, find M.</p> <p>5 十九</p>	<p>AB, AC and BC are three tangents touching the circle at D, E and F respectively. If $AC = 24$, $BC = 18$ and $\angle ACB = 90^\circ$, find the radius of the circle.</p>  <p>6 二十</p>	<p>The diagram shows a regular pentagon. Find the area of the pentagon correct to the nearest integer.</p>  <p>2 cm</p> <p>7 立冬</p>
<p>If $\frac{nPr}{nCr} = 40\,320$, find r.</p> <p>8 廿二</p>	<p>Given ${}_nC_2 = 4n$, find n.</p> <p>9 廿三</p>	<p>(x, y) is a point in the shaded region (including the boundary) and x, y are integers. Find the greatest value of $3x + y$.</p>  <p>10 廿四</p>	<p>If $\frac{1}{x} = 0.090909090909\dots$, find x.</p> <p>11 廿五</p>	<p>If $AB = AC = 12$, $BD : BC = 1 : 3$ and area of $ABDE$: area of $\triangle EDC = 3 : 2$, find x if the length of $AE = \frac{2x}{5}$.</p>  <p>12 廿六</p>	<p>N is a natural number. Divide $N!$ by 12. Then divide the quotient by 12 if it is divisible by 12. Do the same for the new quotient and repeat the process till the quotient is not divisible by 12. The last quotient is 25 025. Find N.</p> <p>13 廿七</p>	<p>In the figure, the area of $\triangle ABC$ is 35 cm^2 and $\angle A = 30^\circ$. AC is longer than AB by 4 cm. $AC = ?$</p>  <p>14 廿八</p>
<p>If $\frac{H E}{S H E} + \frac{H E}{H E} + \frac{H E}{S H E} = \frac{S H E}{1 0}$, then $\frac{S H E}{1 0} = ?$</p> <p>15 廿九</p>	<p>If $(\sqrt{2} + \sqrt{1})^{-1} + (\sqrt{3} + \sqrt{2})^{-1} + \dots + (\sqrt{G} + \sqrt{(G-1)})^{-1} = 3$, find G.</p> <p>16 三十</p>	<p>In $\triangle ABC$, $AP = 3$, $AQ = 6$ and $QC = 4$. If $\angle APQ = \angle ACB$, $PB = ?$</p>  <p>17 十月</p>	<p>Find the area of the inner square.</p>  <p>18 初二</p>	<p>1st row: 2 2nd row: 4 6 3rd row: 8 10 12 ... k^{th} row: ... 350 ..., find k.</p> <p>19 初三</p>	<p>BD is a diameter of the circle $ABCD$. $AB = AC$ and $\angle BDC = 40^\circ$, $\angle ABD = ?$</p>  <p>20 初四</p>	<p>$ABCD$ is a trapezium with height $AB = 10$ cm. The trapezium is divided into 5 regions as shown in the figure. Area of region I is 6.3 cm^2 and area of region II is 14.7 cm^2. Find the area of region IV.</p>  <p>21 初五</p>
<p>a and b are digits. If $\frac{a\overline{abb}}{aa} - 2 \times \frac{a\overline{abb}}{bb} = 0$ and $\overline{aa} + \overline{bb} = 132$, find $\frac{\overline{aa}}{2}$.</p> <p>22 小雪</p>	<p>修改自孫子問題/物不知數問題《孫子算經》 今有物不知其數，三三數之賸二，五五數之賸三，七七數之賸二，問物最少幾何？</p> <p>23 初七</p>	<p>Given $P(A) = \frac{2}{3}$, $P(A \cap B) = \frac{1}{8}$, $P(A \cap B) = \frac{13}{K}$, $K = ?$</p> <p>24 初八</p>	<p>In the figure, $\triangle ABC$ is a horizontal plane and P is a point vertically above C. If $\angle BCA = \angle CDB = \angle DCP = 90^\circ$, $AC = 3\text{ m}$, $BC = 4\text{ m}$ and $PC = 5\text{ m}$, $\tan \theta = \frac{k}{12}$, $k = ?$</p>  <p>25 初九</p>	<p>Find the area of the shaded region.</p>  <p>26 初十</p>	<p>Find the area of the triangle ABC, correct to the nearest integer.</p>  <p>27 十一</p>	<p>Given $1 + 2 + \dots + (n - 1) + n + (n - 1) + \dots + 2 + 1 = 28^2$, find n.</p> <p>28 十二</p>
<p>Find the remainder when $(2x + 2)(x + 3)(x^2 + 2) - 19$ is divided by $(x - 1)$.</p> <p>29 十三</p>	<p>In the figure, A, B, C, D and E lie on a circle. AC intersects BE at K. $\angle ACD = 100^\circ$ and $\angle CDE = 130^\circ$. If $BE \parallel CD$, $\angle ACB = ?$</p>  <p>30 十四</p>	<p>等候理論 (Queueing Theory)</p> <p>等候理論是數學運籌學的分支學科。它是研究服務系統中排隊現象隨機規律的學科。廣泛應用於計算機網絡、生產、運輸、庫存等各項資源共享的隨機服務系統。</p> <p>等候理論研究的內容有3個方面：統計推斷，根據資料建立模型；系統的性態，即和排隊有關的數量指標的機率規律性；系統的優化問題。其目的是正確設計和有效運行各個服務系統，使之發揮最佳效益。</p> 				

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