

# JUNE ... A LITTLE BIT OF MATHS EVERY DAY

# JustMaths

<p>1 Simplify</p> $6(x-3) - 2(x-2)$ $6x - 18 - 2x + 4$ $4x - 14$	<p>2 Find the ranges:</p> <p>12, 14, 11, 9, 13, 15, 17,</p> <p>10, 12</p> $17 - 9 = 8$	<p>3 What is the surface area of a cube with side length</p> <p>6cm</p> $l_{\text{side}} = 36\text{cm}^2$ $\text{All faces} = 216\text{cm}^2$	<p>4 A water container has 19.5 litres of water in it.</p> <p>A cup holds 210 ml of water.</p> <p>How many cups of water can be filled from the water container?</p> <p>92 cups ✓ 93 ← not enough</p>	<p>5 Find the product of the sixth prime number and the third triangular number.</p> <p>78</p>	<p>6 A box is on a table.</p> <p>The area of the box in contact with the table is <math>1500\text{ cm}^2</math>.</p> <p>The pressure on the table is 28 newtons/m<sup>2</sup>.</p> <p>Work out the force exerted by the box on the table.</p> <p>4.2 Newtons</p>
<p>8 Factorise fully</p> $15xy^2 + 27x^2y + 9xy$ $3xy(5y + 9x + 3)$ $x^2 - 169$ $(x+13)(x-13)$	<p>9 Work out the value of</p> $(3 \times 10^{-5}) + (6 \times 10^7)$ $5 \times 10^{-13}$	<p>10 Round 0.000608765 to three significant figures</p> <p>0.000609</p>	<p>11 Town B is on bearing of <math>065^\circ</math> from Town A.</p> <p>What is the bearing of Town A from Town B?</p> <p><math>245^\circ</math></p>	<p>12 Simplify fully</p> $\frac{m^2 \times m^{-5}}{m^{-3}}$ <p><math>m^0 = 1</math></p>	<p>12 Work out the shaded area</p> $\pi \times 5^2 - \pi \times 4^2$ $25\pi - 16\pi = 9\pi$ $= 28.3\text{cm}^2 \text{ (1dp)}$
<p>15 What is the size of an interior angle of a pentagon? Sides</p> <p><math>108^\circ</math></p>	<p>16 Solve</p> $4x - 7 = 21$ $x = 7$	<p>17 I invest £1200 in an account that pays compound interest of 1.5% per annum.</p> <p>How much interest will I earn in 3 years? £54.81</p>	<p>18 Write 185 as a product of its prime factors</p> <p><math>5 \times 37</math></p>	<p>19 Factorise</p> $x^2 - 7x + 12$ $(x-3)(x-4)$	<p>20 Calculate:</p> $\frac{2}{5} + \frac{3}{8} = \frac{31}{40}$ <p>20 Expand and simplify</p> $(2x - y)(3x + 2y)$ $6x^2 - xy - 2y^2$ $3y^2(2x - 3)$ $6xy^2 - 9y^2$
<p>22 Change <math>4.2\text{m}^2</math> into <math>\text{mm}^2</math></p> $1\text{m} \times 4.2\text{m} = 4.2\text{m}^2$ $1000\text{mm} \times 4200\text{mm}$ $4,200,000\text{mm}^2$	<p>23 What is the lowest common multiple of 8, 12 and 15?</p> <p>120</p>	<p>24 The total cost of 3 pens and 4 pencils is £1.84</p> <p>The total cost of 5 pens and 2 pencils is £1.76</p> <p>Work out the cost of one pen and the cost of one pencil.</p> $3A + 4B = 1.84$ $5A + 2B = 1.76$ <p>Pen = 24p Pencil = 28p</p>	<p>25 A number "x", is rounded to 9.5 correct to 2 significant figures.</p> <p>What is the error interval of x?</p> $9.45 \leq x < 9.55$	<p>26 There are a total of 120 counters in a box. R = 90 B = 30</p> <p>There are three times as many red counters as blue counters.</p> <p>Vicky takes one third of the red counters from the box. 30</p> <p>Oliver takes 80% of the blue counters from the box. 24</p> <p>Work out the ratio of the number of red counters to the number of blue counters now in the box. R = 60 B = 6</p> <p>10 : 1</p>	
<p>24 Is 150 a term in the sequence?</p> $n^2 + 3$ $n^2 + 3 = 150$ $n = 49$ <p>Yes, n is a whole number</p>	<p>30 Find the mean</p> <p>12, 14, 11, 9, 13, 15, 17,</p> <p>10, 12</p> $113 \div 9 = 12.5$	<p>REMEMBER: The best way to revise maths is to "do Maths"!</p>			