

Level 3 Test – Knowledge

Name

60 minutes Calculator allowed Scribbling paper allowed

Score: $/37 \times 1.41 =$ $/52$

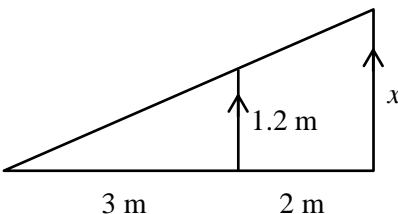
Number		
Q1	Albert and Deidre share \$500 in the ratio 3:5. How much does Albert get?	/1
Q2	Write 345 000 in scientific notation.	/1
Q3	Dorian invested \$2 000 at 7.5% p.a. simple interest for 6 years. How much interest will he get?	/1
Q4	You need to borrow money for 3 years at 11% p.a. simple interest. If you don't want to pay more than \$1000 in interest, what's the most you could borrow?	/1
Q5	If it takes 24 L of fuel to travel 200 km, how much would it take to travel 550 km?	/1
Q6	If it takes 4h 30 min for 5 people to put 2000 letters in envelopes, how many hours and minutes would it take 8 people?	/1

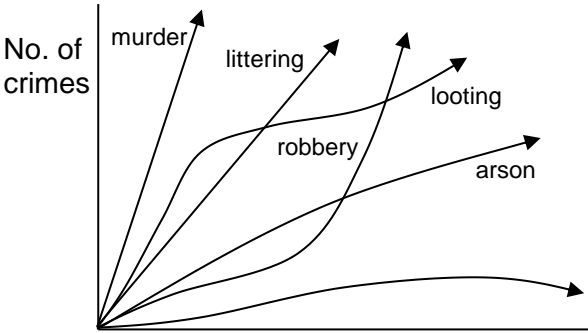
Algebra		
Q7	Solve $4(x - 2) + 7 = x - 5$, showing working.	/2

Q8	Write and solve an equation to work out the following: Mandy worked for 6 days. Each day she got paid \$5 more than the previous day. Her total wage for the 6 days was \$735. How much was she paid on the 5th day?	/2
Q9	Solve $\left(\frac{2x}{3}\right)^2 - 12^{1/9} = -5$, showing working.	/2
Q10	Re-write $r = \frac{2t-5}{4} + 7$ with t as the subject.	/1
Q11	What is the maximal domain of $y = \frac{4}{\sqrt{9-x^2}}$?	/1
Q12	What is a function?	/1

Q13	What is the formula for a linear function with gradient $-\frac{1}{2}$ given that $y = 2$ when $x = -5$?	/1
Q14	If it takes 60 person-hours to clean a school, write the relation between number of workers, n , and time taken, t .	/1
Q15	Simplify as far as possible $\left(\frac{a^4 \times a^5}{a^7}\right)^3 \times a^4$	/1

Measurement		
Q16	How long is the diagonal of a 10 cm by 6 cm rectangle to 2 decimal places?	/1
Q17	Find the area of an equilateral triangle with 4 cm sides.	/1
Q18	Madeline left camp and walked 4 km east, then walked north until camp was on a bearing of 213° . How far north did she walk to the nearest metre?	/1
Q19	A 7 m wire is strung tightly from the top of a 4 m vertical pole to the horizontal ground. What angle does the wire make with the ground to the nearest degree?	/1
Q20	The formula $\frac{1}{4}\pi a^2 b$, where a and b are lengths is for a perimeter an area a volume (circle one)	/1
Q21	A spherical balloon has a volume of 1.6 L. It is then inflated so that its diameter increases by 50%. What will its volume be then?	/1

Geometry		
Q22	Find the length marked x on this diagram. 	/1

Statistics														
Q23	<p>These are the heights of the students in a 6th grade class. What is the median height?</p> <table style="border-collapse: collapse; margin-left: 20px;"> <tr><td style="border-right: 1px solid black; padding-right: 5px;">12</td><td>5 8</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">13</td><td>1 5 7 9</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">14</td><td>0 2 2 5 7 8 8</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">15</td><td>1 3 4 4 5 8</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">16</td><td>1 4 7</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">17</td><td>2</td></tr> </table>	12	5 8	13	1 5 7 9	14	0 2 2 5 7 8 8	15	1 3 4 4 5 8	16	1 4 7	17	2	/1
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16	1 4 7													
17	2													
Q24	<p>List 3 major problems with this graph.</p> 	/3												

Probability		
Q25	<p>If you roll two 6-sided dice, what is the probability of getting a 5 on the red one and a number less than 5 on the blue one?</p>	/1

Q26

Imagine you toss three coins. Draw a tree diagram showing the probabilities and a graph of the probability distribution for the number of heads obtained.

/3