Level 3 Test – Knowledge

Name . . . . . .

60 minutes Calculator allowed Scribbling paper allowed

Score: /34 × 1.59 = /54

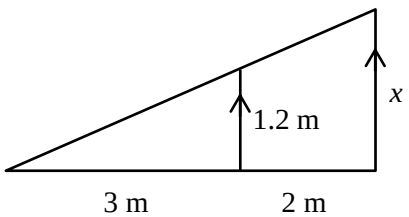
Number		
Q1	Albert and Deidre share $500 in the ratio 3:5. How much does Albert get?	/1
Q2	Write 345 000 in scientific notation.	/1
Q3	Dorian invested $2 000 at 7.5% p.a. simple interest for 6 years. How much interest will he get?	/1
Q4	You need to borrow money for 3 years at 11% p.a. simple interest. 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 –½ 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

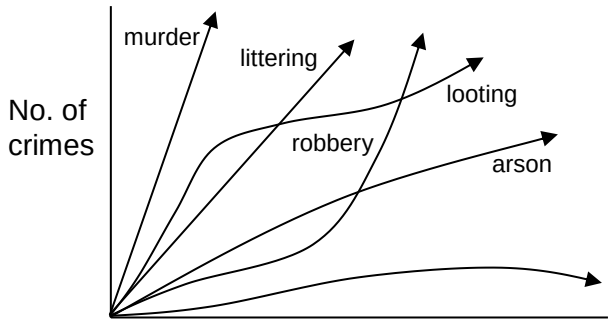
Q23 (/1)

These are the heights of the students in a 6th grade class.
What is the median height?

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

Q24 (/3)

List 3 major problems with this graph.



Probability

Q25 (/1)

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?