Day 264 **A Tier 10-a-day**

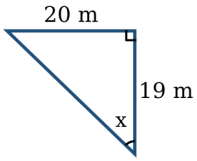
1 Ravi and Lena share some marbles in the ratio 1 : 6.
Ravi gets 4 marbles.
How many marbles does Lena get?

2 Bus A leaves a bus station every 8 minutes.
Bus B leaves the same station every 20 minutes.
Both buses leave together at 10:05 am.
At what time will they next leave together?

3 The table gives information about 87 measurements.
A histogram is drawn using this information.
(a) Work out the missing frequency.
(b) Work out the height of the bar for the class $35 < t \leq 55$.

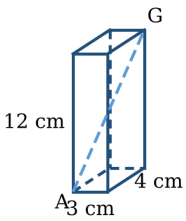
Time, t (minutes)	Frequency
$10 < t \leq 20$	?
$20 < t \leq 35$	18
$35 < t \leq 55$	32
$55 < t \leq 60$	13

4 Work out the size of angle x. (Calculator)
Give your answer to 1 decimal place.
The diagram is not drawn accurately.



5 The line L has equation $y = \frac{2}{3}x + 1$

Find the equation of the line that is perpendicular to L and passes through the point $(2, -12)$.

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6 P is the point (3, 2) and Q is the point (−3, 0). (a) Find the midpoint of PQ. (b) Work out the length of PQ. Give your answer as a surd in its simplest form.	
7 Expand and simplify $(x - 3)(x - 4)(x - 4)$	
8 Here are four fractions: $\frac{9}{12}$ $\frac{3}{9}$ $\frac{3}{10}$ $\frac{3}{8}$ Which one of these fractions is equal to a recurring decimal?	
9 The diagram shows a cuboid. Work out the length of the diagonal AG. The diagram is not drawn accurately. 	
10 A cyclist travels 760 metres in 6.3 seconds. The distance is correct to the nearest 10 metres and the time to the nearest 0.1 second. (a) Work out the upper bound and the lower bound of the speed in m/s. (b) Write the speed to a suitable degree of accuracy. Give a reason for your answer.	