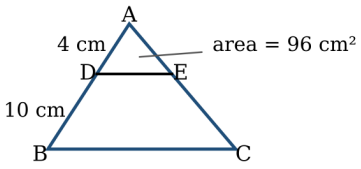
Day 342	S Tier 10-a-day

1 Solve $\frac{x+2}{6} + \frac{x-3}{5} = -1$

2 Work out $(6.2 \times 10^{6}) \times (3.4 \times 10^{-5})$
Give your answer in standard form.

3 FitLife has a joining fee of £4.50 plus £3 per month.
GymNow has a joining fee of £25.50 plus £1.50 per month.
(a) Work out the number of months for which the two costs are the same.
(b) Which is cheaper for 17 months, and by how much?

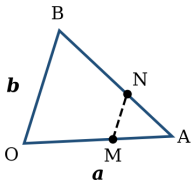
4 In the diagram, DE is parallel to BC. AD = 4 cm, DB = 10 cm and the area of triangle ADE is 96 cm^2.
Work out the area of the trapezium DBCE.
The diagram is not drawn accurately.



5 Show that $(6 - 2\sqrt{7})(6 + 2\sqrt{7})$ is an integer.

Day 342 **S Tier 10-a-day**

6 OAB is a triangle. OA = **a** and OB = **b**.
M is on OA with OM : MA = 3 : 2. N is on AB with AN : NB = 2 : 3.
(a) Find ON in terms of **a** and **b**.
(b) Find MN in terms of **a** and **b**.
The diagram is not drawn accurately.



7 The 2nd term of a geometric sequence is −162.
The 5th term of the sequence is 4374.
(a) Work out the common ratio.
(b) Work out the first term.

8 The table gives information about 82 lengths.
Work out an estimate for the median.
Assume the values in each class are evenly spread.

Length, l (cm)	Frequency
$10 < l \leq 30$	18
$30 < l \leq 50$	16
$50 < l \leq 70$	8
$70 < l \leq 90$	20
$90 < l \leq 110$	20

9 A point A is on level ground in line with the base of a tower. (Calculator)
The angle of elevation of the top of the tower from A is 51°.
B is a point on the same line, 50 m further from the tower than A.
The angle of elevation of the top of the tower from B is 37°.
Work out the height of the tower. Give your answer to 1 decimal place.

10 Jamal and Dina live 120 km apart.
At 10:00 they set off towards each other on the same road.
Jamal drives at 80 km/h and Dina drives at 40 km/h.
(a) At what time do they meet?
(b) How far from Jamal's home do they meet?