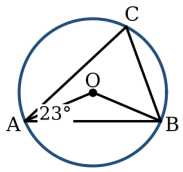
Day 142 **S Tier 10-a-day**

1 A, B and C are points on a circle, centre O.
Angle OAB = 23°.
(a) Work out the size of angle AOB.
(b) Work out the size of angle ACB.
The diagram is not drawn accurately.

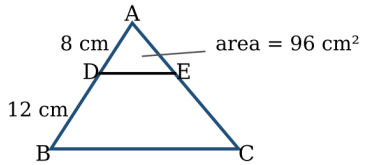


2 The point P(8, 4) lies on the graph of y = f(x).
Write down the coordinates of the image of P on the graph of
(a) y = f(x) + 4 (b) y = f(−x)

3 Rationalise the denominator of $\frac{29}{2\sqrt{6}}$
Give your answer in its simplest form.

4 Tariq changes £400 into dollars at £1 = $1.15.
Tariq spends $100 and then changes the rest back into pounds at £1 = $1.6.
How many pounds does Tariq get back?

5 In the diagram, DE is parallel to BC. AD = 8 cm, DB = 12 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.



Day 142	S Tier 10-a-day
6 The length of a rectangle is decreased by 30%. The width of the rectangle is increased by 30%. Work out the percentage change in the area of the rectangle.	
7 Maya and Amir play a match. The first to win 2 chess games wins the match. The probability that Maya wins any one of the chess games is $\frac{2}{5}$. Work out the probability that the match needs a third one to decide it.	
8 Solve $27^x = 3^{2x-1}$	
9 A train travels at a constant speed of 90 km/h. It takes 60 seconds to go completely through a tunnel which is 1,120 m long. Work out the length of the train, in metres.	
10 Solve $\frac{3}{x+2} - \frac{3}{x+5} = \frac{1}{2}$	