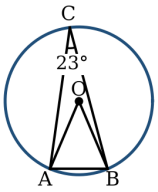
Day 305	S Tier 10-a-day

1 Factorise fully $2x^3 - 50x$

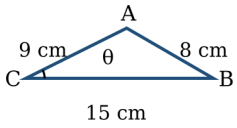
2 The volume of juice is 92 litres, truncated to a whole number.
Write down the error interval for the volume of juice, using v.

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



4 (a) Write $4x^2 - 40x + 108$ in the form $a(x + p)^2 + q$
(b) Write down the coordinates of the turning point of the curve $y = 4x^2 - 40x + 108$

5 The diagram shows triangle ABC. (Calculator)
(a) Work out angle ACB, marked θ, to 1 decimal place.
(b) Work out the area of triangle ABC to 3 significant figures.
The diagram is not drawn accurately.



Day 305	S Tier 10-a-day
6 Write $12^2 \times 20^2$ as a product of powers of prime numbers.	
7 A metal crate in the shape of a cuboid weighs 1140 N. Its smallest face has area 600 cm^2. Its largest face has area 1,200 cm^2. Pressure = force ÷ area Work out (a) the greatest pressure and (b) the least pressure the metal crate can exert on the ground, in N/m^2.	
8 Solve $\frac{2}{x+5} - \frac{6}{x+2} = \frac{1}{3}$	
9 Tin A holds red paint and white paint in the ratio 5 : 2. Tin B holds red paint and white paint in the ratio 2 : 5. 7 litres from tin A and 56 litres from tin B are mixed. Work out the ratio of red paint to white paint in the mixture.	
10 ABCD is a rectangle with AB = 9 cm and AD = 7 cm. A point P inside the rectangle is such that AP ≤ 6 cm and P is nearer to AB than to AD. Work out the area of the region in which P can lie. Give your answer in terms of π.	