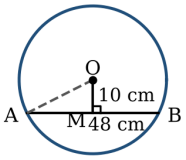
Day 215 **S Tier 10-a-day**

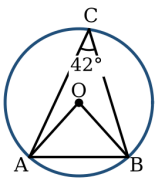
1 Work out the value of $a^2 - 3bc$
when $a = -2$, $b = -3$ and $c = 2$.

2 AB is a chord of a circle, centre O. M is the midpoint of AB. (Calculator)
(a) Work out the radius of the circle.
(b) Work out angle AOB, to 1 decimal place.
The diagram is not drawn accurately.



3 L is directly proportional to the square root of t.
When t = 16, L = 36.
(a) Find a formula for L in terms of t.
(b) Work out the positive value of t when L = 18.

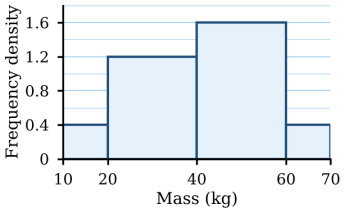
4 A, B and C are points on a circle, centre O.
Angle ACB = 42°.
(a) Work out the size of angle AOB.
(b) Work out the size of angle OAB.
The diagram is not drawn accurately.



5 Work out $(4.5 \times 10^4) \times (1.3 \times 10^8)$
Give your answer in standard form.

Day 215 **S Tier 10-a-day**

6 The histogram shows the masses of parcels delivered by a courier.
(a) Work out the total number of parcels.
(b) Estimate the number of parcels with a mass between 15 kg and 65 kg.



7 Simplify fully $\frac{x^2 - 8x + 7}{x^2 - 12x + 35}$

8 A is the point (8, 7) and B is the point (16, 3).
Find an equation of the perpendicular bisector of AB.
Give your answer in the form ax + by = c, where a, b and c are integers.

9 Given that x > 0, solve $x^{-\frac{5}{2}} = \frac{1}{32768}$

10 A cone is cut parallel to its base to make a smaller cone and a frustum.
The frustum has height 2 cm, top radius 6 cm and base radius 12 cm.
Work out the volume of the frustum. Give your answer in terms of π.

