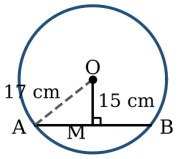
Day 26 **IGCSE 10-a-day**

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



2 Find $\frac{dy}{dx}$ when $y = 5x^4 + 6x + 5$

3 $A = \begin{pmatrix} 1 & 1 \\ 2 & 5 \end{pmatrix}$ and $B = \begin{pmatrix} -2 & -1 \\ -4 & -2 \end{pmatrix}$.
(a) Work out AB.
(b) Work out BA.

4 24 machines can make a batch of bolts in 12 hours.
After 6 hours, 8 of the machines leave. The rest carry on working at the same rate.
How many more hours does it take to finish?

5 A company sells x thousand items each month.
The price of each item is £32 − 2x.
The monthly revenue is £R thousand.
(a) Show that $R = 32x - 2x^2$.
(b) Find the maximum monthly revenue, showing that it is a maximum.

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6 a = 0.49 and b = 0.48, both correct to 2 decimal places. Work out the upper bound of a − b.	
7 Show algebraically that the product of any two consecutive even numbers is a multiple of 8.	
8 The curve $y = x^2 - 2x - 3$ and the line $y = -5x - 3$ intersect at two points A and B, where A has the smaller x coordinate. (a) Find the coordinates of A and B. (b) Find the gradient of the curve at A and at B.	
9 A metal block has mass 460 g, correct to the nearest 10 g, and volume 285 cm^3, correct to the nearest 5 cm^3. Work out the upper bound of the density of the metal, in g/cm^3. Give your answer to 3 significant figures. (Calculator)	
10 A solid cone has base radius 2 cm and height 27 cm. It is melted down and recast into a solid sphere. Work out the radius of the sphere. The volume of a cone is $\frac{1}{3}\pi r^2 h$ and the volume of a sphere is $\frac{4}{3}\pi r^3$.	