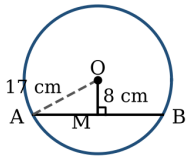
Day 17 **IGCSE 10-a-day**

1 A curve has equation $y = 2x^2 - 6x + 1$.
Find the equation of the normal to the curve at the point where $x = 0$.

2 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.



3 The price of a phone is decreased by 25%.
The new price is then decreased by 15%.
Work out the overall percentage change in the price.

4 Tap A can fill an empty tank in 8 minutes.
Tap B can fill an empty tank in 24 minutes.
Both are turned on at the same time.
How long do they take to fill an empty tank?

5 Simplify fully $\dfrac{x^2 - 81}{x^2 + 15x + 54}$

Day 17	IGCSE 10-a-day
6 Describe fully the single transformation that maps the graph of y = f(x) onto the graph of (a) y = 3f(x) (b) y = f(x + 7)	
7 The curve $y = -2x^2 + x + 5$ and the line $y = -5x + 5$ 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.	
8 Simplify fully $\frac{x^2 + 5x + 6}{x + 1} \div \frac{x + 3}{x^2 + 7x + 6}$	
9 A company sells x thousand items each month. The price of each item is £$42 - 3x$. The monthly revenue is £R thousand. (a) Show that $R = 42x - 3x^2$. (b) Find the maximum monthly revenue, showing that it is a maximum.	
10 $M = \begin{pmatrix} -2 & -4 \\ 2 & 3 \end{pmatrix}$. (a) Find M^{-1}. (b) Use your answer to (a) to solve $-2x - 4y = -18$ $2x + 3y = 12$	