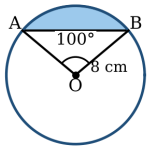
Day 198 **IGCSE 10-a-day**

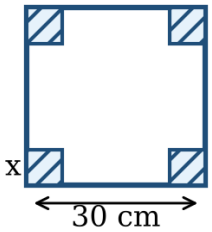
1 Show that $0.3\dot{6} = \frac{11}{30}$

2 The circle has centre O and radius 8 cm. A and B are points on the circle and angle AOB = 100°. (Calculator)
Work out the area of the shaded segment. Give your answer correct to 3 significant figures.
The diagram is not drawn accurately.



3 n is an integer.
How many values of n satisfy
$-10 \leq n - 5 \leq -3$

4 Squares of side x cm are cut from the corners of a 30 cm square card sheet, which is folded into an open box of volume V cm^3.
(a) Show that $V = 4x^3 - 120x^2 + 900x$.
(b) Find x for the maximum volume, and this volume.



5 (a) Write $2x^2 - 12x + 13$ in the form $a(x + p)^2 + q$
(b) Write down the coordinates of the turning point of the curve $y = 2x^2 - 12x + 13$

Day 198 **IGCSE 10-a-day**

6 Show that $(5 - 3\sqrt{2})(5 + 3\sqrt{2})$ is an integer.

7 $y = 4x + \frac{16}{x}$

Find the values of x for which y is increasing.

8 $f(x) = \frac{x - 5}{3}$ and $g(x) = x^2 + 6x + 7$.

Solve $f^{-1}(x) = g(x)$.

9 $f(x) = x^3 + kx^2 + 75x$, where k is a constant.
Given that f is an increasing function for all values of x, find the range of possible values of k.

10 The table gives information about the times taken by some people to travel to work.
An estimate for the mean is 10.
Work out the value of x.

Time, t (minutes)	Frequency
$0 < t \leq 5$	13
$5 < t \leq 10$	9
$10 < t \leq 15$	x
$15 < t \leq 20$	15