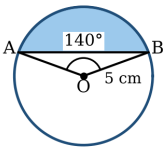
Day 102	IGCSE 10-a-day
1 The probability that the 8:15 train is late on any day is $\frac{1}{5}$. Events on different occasions are independent. Work out the probability that this happens at least once in 4 days. Give your answer correct to 3 significant figures. (Calculator)	
2 The vectors $\begin{pmatrix}2k\\32\end{pmatrix}$ and $\begin{pmatrix}2\\2k\end{pmatrix}$ are parallel. k is a positive number. Work out the value of k.	
3 $A = \begin{pmatrix}2 & -4\\3 & -4\end{pmatrix}$ and $B = \begin{pmatrix}3 & 5\\3 & 1\end{pmatrix}$. (a) Work out AB. (b) Work out BA.	
4 $f(x) = x^2 - 6$ Use differentiation to find the coordinates of the turning point of the graph of y = f(x). State whether it is a maximum or a minimum.	
5 Work out $(3.75 \times 10^{-2}) \div (1.25 \times 10^{-1})$ Give your answer in standard form.	

Day 102	IGCSE 10-a-day
6 The curve $y = x^3 + 3x^2 + kx$ has a stationary point at $x = -3$. (a) Find the value of k. (b) Find the coordinates of the other stationary point.	
7 Solve the simultaneous equations $x^2 + y^2 = 29$ $y = -x - 3$	
8 The circle has centre O and radius 5 cm. A and B are points on the circle and angle AOB = 140°. (Calculator) Work out the area of the shaded segment. Give your answer correct to 3 significant figures. The diagram is not drawn accurately. 	
9 A rectangle has area 120 cm^2, correct to 2 significant figures. Its length is 14 cm, correct to 2 significant figures. Work out the lower bound of the width of the rectangle. Give your answer correct to 3 significant figures. (Calculator)	
10 $f(x) = x^3 + kx^2 + 3x - 4$, 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.	