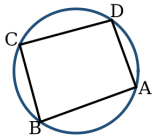
Day 36	IGCSE 10-a-day
1 A curve has equation $y = x^3 - 3x^2 - 3x - 1$. Find the equations of the two tangents to the curve that are parallel to the line $y = 6x - 1$.	
2 The mean mark of 12 students in class A is 73. The mean mark of 20 students in class B is 40. Work out the mean mark of all 32 students.	
3 A curve has equation $y = 3x^2 + 2x - 6$. Find the equation of the normal to the curve at the point where $x = 0$.	
4 Solve $\sin x = -0.5$ for $0 \leq x \leq 360$. Give your answers correct to 1 decimal place. (Calculator)	
5 A, B, C and D are points on a circle. Angle DAB = $(3x + 5)°$, angle BCD = $(5x - 17)°$ and angle ABC = $(3x - 15)°$. (a) Work out the value of x. (b) Work out the size of angle ADC. The diagram is not drawn accurately. 	

Day 36	IGCSE 10-a-day
6 Solve $x^4 - 34x^2 + 225 = 0$	
7 A rectangular pen is x metres wide and y metres long. It is fenced all round and divided into two equal parts by a fence each of length x metres, parallel to the width. The total length of fencing used is 60 m. (a) Show that the area of the pen is $A = -\frac{3}{2}x^2 + 30x$. (b) Find the maximum possible area, justifying that it is a maximum.	
8 A train travels a distance of 72 km, correct to 2 significant figures. The journey takes 7.6 hours, correct to 2 significant figures. Work out the upper bound of the speed. Give your answer correct to 3 significant figures. (Calculator)	
9 Container A holds juice and water in the ratio 3 : 4. Container B holds juice and water in the ratio 5 : 2. 14 litres from container A and 21 litres from container B are mixed. Work out the ratio of juice to water in the mixture.	
10 The diagram shows a rectangle of length (x + 2) cm, width (2x + 3) cm and area 120 cm^2. (a) Show that $2x^2 + 7x - 114 = 0$. (b) Work out the length of the diagonal of the rectangle. Give your answer correct to 3 significant figures. 