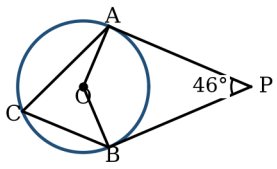
Day 98	IGCSE 10-a-day
1 Each interior angle of a regular polygon is 11 times the size of each exterior angle. Work out the number of sides of the polygon.	
2 A flight leaves London at 19:35 (London time). It takes 10 hours 40 minutes. When it is 12:00 in London it is 07:00 in New York. At what time, in New York time, does the flight land? Say if it is on a different day.	
3 The graph of $y = 3x^2 + 24x + 9$ has a turning point at P. Find the equation of the tangent to the curve at P.	
4 PA and PB are tangents to a circle, centre O. C is a point on the circle. Angle APB = 46°. (a) Work out the size of angle AOB. (b) Work out the size of angle ACB. The diagram is not drawn accurately. 	
5 x and y satisfy $x \geq 0$, $y \geq 0$, $3x + 4y \leq 36$ and $6x + 4y \leq 60$. Find the greatest value of $P = 5x + 6y$ and the values of x and y that give it.	

Day 98	IGCSE 10-a-day
6 A circle has centre C(−3, 3) and passes through the point P(5, 7). Find an equation of the circle.	
7 A curve has equation $y = 2x^3 + 18x^2 + 57x + 2$. (a) Show that the curve has no stationary points. (b) Find the least value of the gradient of the curve.	
8 A train travels at a constant speed of 54 km/h. It takes 40 seconds to go completely through a tunnel which is 270 m long. Work out the length of the train, in metres.	
9 An open container has a square base of side x cm and height h cm. The total outside surface area is 432 cm^2. (a) Show that the volume of the box is $V = \frac{1}{4}(432x - x^3)$ cm^3. (b) Find the maximum volume of the box, proving that it is a maximum.	
10 $g(x) = x^2 - 6x + 11$ for $x \leq 3$. (a) Find the range of g. (b) Find $g^{-1}(x)$.	