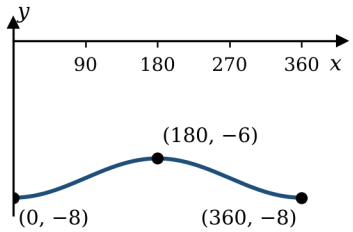
Day 28	S Tier 10-a-day
1 Each interior angle of a regular polygon is 11 times the size of each exterior angle. Work out the number of sides of the polygon.	
2 The diagram shows the graph of $y = a \cos x° + c$ for $0 \leq x \leq 360$. Some points on the graph are labelled. Find the value of a and the value of c. 	
3 100 deer in a forest are caught, marked and put back. Later, a second sample of 80 deer is caught. 5 of these are marked. (a) Work out an estimate for the number of deer in a forest. (b) State one assumption you have made.	
4 The 6th term of an arithmetic sequence is 42. The 10th term of the sequence is 58. (a) Find an expression for the nth term of the sequence. (b) Is 163 a term of the sequence? You must show your working.	
5 Solve $\tan x = \sqrt{3}$ for $0° \leq x \leq 360°$. Do not use a calculator.	

Day 28	S Tier 10-a-day
6 Work out $(2.8 \times 10^{1})^{3}$ Give your answer in standard form.	
7 The kinetic energy of a moving car is directly proportional to the square of its speed. Its speed is increased by 50%. Work out the percentage change in the kinetic energy of a moving car.	
8 ABCD is a rectangle with AB = 7 cm and AD = 5 cm. A point P inside the rectangle is such that AP ≤ 2 cm and P is nearer to AB than to AD. Work out the area of the region in which P can lie. Give your answer in terms of π.	
9 A train travels at a constant speed of 90 km/h. It takes 60 seconds to go completely through a tunnel which is 1,200 m long. Work out the length of the train, in metres.	
10 A machine was bought for £9,100. Each year its value decreases by the same percentage. After 2 years it is worth £5,824. Work out the percentage decrease each year.	