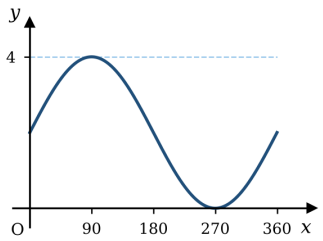
Day 53	S Tier 10-a-day
1 Work out the exact value of cos 60° + sin 60° Give your answer in its simplest form, as a fraction or surd. Do not use a calculator.	
2 The price of a tablet is increased by 30%. Later the new price is reduced by 20% in a sale. The sale price is £520. Work out the price before the increase. (Calculator)	
3 A is the point (0, 0) and B is the point (−8, 2). Find an equation of the perpendicular bisector of AB. Give your answer in the form ax + by = c, where a, b and c are integers.	
4 Solve the simultaneous equations $y = x^2 - x - 6$ $y = -2x - 4$	
5 Priya invests £1,000 for 5 years at 5% per year simple interest. Lena invests £1,000 for 5 years at 5% per year compound interest. Work out how much more interest Lena earns than Priya. Give your answer to the nearest penny. (Calculator)	

Day 53 **S Tier 10-a-day**

6 The diagram shows the graph of $y = a \sin x + c$.
(a) Write down the value of a and the value of c.
(b) Work out the value of y when x = 30°.



7 Solve $8^{3x+5} = 4^{x+4}$

8 The table gives information about 98 masses.
Work out an estimate for the median.
Assume the values in each class are evenly spread.

Mass, m (kg)	Frequency
$10 < m \leq 20$	13
$20 < m \leq 30$	12
$30 < m \leq 40$	30
$40 < m \leq 50$	10
$50 < m \leq 60$	10
$60 < m \leq 70$	23

9 T is directly proportional to the cube of l.
When l = 10, T = 6000.
(a) Find a formula for T in terms of l.
(b) Find the value of T when l = 5.

10 A train travels at a constant speed of 36 km/h.
It takes 45 seconds to cross completely over a bridge which is 200 m long.
Work out the length of the train, in metres.