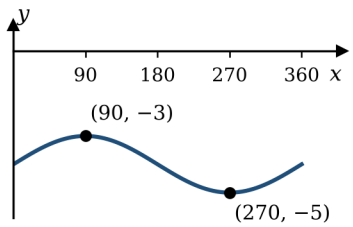
Day 24	S Tier 10-a-day
1 In triangle PQR, side QR is extended to S. Angle QPR = (4x − 15)° Angle PQR = (3x − 15)° Angle PRS = (6x − 3)° (a) Work out the value of x. (b) Work out the size of angle PRQ.	
2 Work out $27^{\frac{7}{3}}$	
3 24 machines can make a batch of bolts in 20 hours. After 2 hours, 8 of the machines leave. The rest carry on working at the same rate. How many more hours does it take to finish?	
4 Solve $5 \cos x + 2 = 0$ for $0° \leq x \leq 360°$. (Calculator) Give your answers correct to 1 decimal place.	
5 Work out the value of $3a - b^3$ when $a = -2$, $b = -1$ and $c = 1$.	

Day 24	S Tier 10-a-day

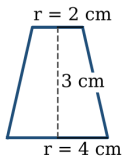
6 The probability that a light bulb in a hallway fails in any month is $\frac{3}{10}$.
Events on different occasions are independent.
Work out the probability that this happens at least once in 6 months.
Give your answer correct to 3 significant figures. (Calculator)

7 The diagram shows the graph of y = a sin x° + c for 0 ≤ x ≤ 360.
Some points on the graph are labelled.
Find the value of a and the value of c.



8 A laptop loses 15% of its value each year.
After 3 years it is worth £17,195.50.
Work out its value when it was new.
(Calculator)

9 A cone is cut parallel to its base to make a smaller cone and a frustum.
The frustum has height 3 cm, top radius 2 cm and base radius 4 cm.
Work out the volume of the frustum. Give your answer in terms of π.



10 $N = 2^2 \times 5^3$
How many factors does N have?
Include 1 and N.