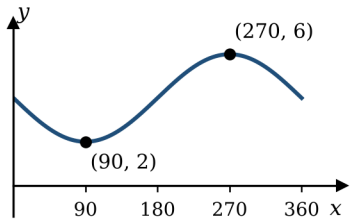
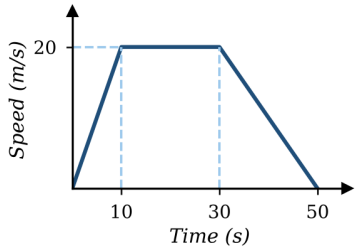
Day 332	S Tier 10-a-day
1 In triangle PQR, side QR is extended to S. Angle QPR = (2x + 25)° Angle PQR = (2x − 15)° Angle PRS = (2x + 48)° (a) Work out the value of x. (b) Work out the size of angle PRQ.	
2 The diagram shows the graph of y = a sin x° + c for 0 ≤ x ≤ 360. Some points on the graph are labelled. Find the value of a and the value of c. 	
3 Rationalise the denominator of $\frac{21}{3\sqrt{6}}$ Give your answer in its simplest form.	
4 The curve $y = 2x^2 - 32x + 96$ crosses the x-axis at the points A and B. (a) Find the coordinates of A and B. (b) Find the coordinates of the minimum point of the curve.	
5 A stone block in the shape of a cuboid weighs 690 N. Its smallest face has area 1000 cm^2. Its largest face has area 2,000 cm^2. Pressure = force ÷ area Work out (a) the greatest pressure and (b) the least pressure the stone block can exert on the ground, in N/m^2.	

Day 332	S Tier 10-a-day
6 Convert the recurring decimal $0.\dot{6}$ to a fraction. Give your fraction in its simplest form.	
7 OA = **a** and OB = **b**. OP = 3**a**, OQ = 15**a** + 9**b** and OR = 31**a** + 21**b**. (a) Show that P, Q and R lie on a straight line. (b) Work out the ratio PQ : QR in its simplest form.	
8 The graph shows the speed of a train between two stations. (a) Work out the acceleration in the first 10 seconds. (b) Work out the total distance. 	
9 A point A is on level ground in line with the base of a cliff. (Calculator) The angle of elevation of the top of the cliff from A is 37°. B is a point on the same line, 50 m further from the cliff than A. The angle of elevation of the top of the cliff from B is 19°. Work out the height of the cliff. Give your answer to 1 decimal place.	
10 There are 25 bacteria in a sample. The number of bacteria is multiplied by 4 every day. After how many days will there first be more than 12,500 bacteria?	