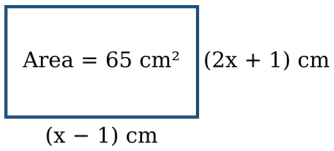
Day 261	S Tier 10-a-day
1 The diagram shows a rectangle of length (x − 1) cm, width (2x + 1) cm and area 65 cm^2. (a) Show that $2x^2 - x - 66 = 0$. (b) Work out the perimeter of the rectangle. 	
2 The 5-digit number 5376k is a multiple of 8. k is a single digit. Find all the possible values of k.	
3 Two shapes are mathematically similar. The smaller has height 24 cm and area 36 cm^2. The larger has area 64 cm^2. Work out the height of the larger shape.	
4 Solve $x^{\frac{4}{3}} = 16$ $x > 0$	
5 A wooden block in the shape of a cuboid weighs 90 N. Its smallest face has area 100 cm^2. Its largest face has area 1,200 cm^2. Pressure = force ÷ area Work out (a) the greatest pressure and (b) the least pressure the wooden block can exert on the ground, in N/m^2.	

Day 261 **S Tier 10-a-day**

6 Ivan invests £8,000 for 5 years at 1.5% per year simple interest.
Omar invests £8,000 for 5 years at 1.5% per year compound interest.
Work out how much more interest Omar earns than Ivan.
Give your answer to the nearest penny.
(Calculator)

7 A fair 6-sided dice and a spinner numbered 1 to 5 are each thrown once. The first score and the second score are recorded.
(a) Work out the probability that the product is greater than 8.
(b) Given that at least one number is 3, work out the probability that the product is greater than 8.

8 (a) Show that the equation $x^3 - 3x - 40 = 0$ can be rearranged to give $x = \sqrt[3]{3x + 40}$
(Calculator)
(b) Use the iteration formula $x_{n+1} = \sqrt[3]{3x_n + 40}$ with $x_0 = 3$ to work out x_1 and x_2. Give each answer correct to 3 decimal places.

9 The table gives information about the masses of some eggs.
An estimate for the mean is 35.
Work out the value of x.

Mass, m (g)	Frequency
$10 < m \leq 20$	13
$20 < m \leq 30$	x
$30 < m \leq 40$	12
$40 < m \leq 50$	5
$50 < m \leq 60$	12

10 The diagram shows the straight line L, which passes through the points A and B.
The line M is perpendicular to L and passes through B.
Find the equation of M in the form y = mx + c.

