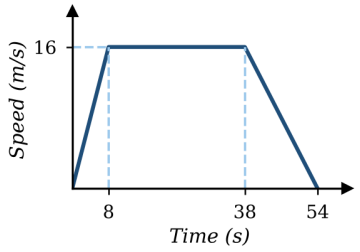
Day 34	S Tier 10-a-day
1 Solve the simultaneous equations $y = x^2 + 4x + 3$ $y = 5x + 23$	
2 The ratio of men to women people at a meeting is 5 : 4. Then $\frac{1}{5}$ of the men and $\frac{1}{6}$ of the women are taken out. Work out the ratio of men to women now.	
3 Triangle P has vertices A(1, −3), B(−2, −4) and C(1, 0). Triangle Q has vertices A'(−1, −9), B'(−10, −12) and C'(−1, 0). Q is an enlargement of P. Describe fully the single transformation that maps P onto Q.	
4 The radius of a sphere is decreased by 40%. Work out the percentage change in the volume of the sphere.	
5 A rectangle has length 5.5 cm and width 6.3 cm, both correct to 1 decimal place. Work out the lower bound of the perimeter of the rectangle.	

Day 34	S Tier 10-a-day

6 The graph shows the speed of a train between two stations.
(a) Work out the acceleration in the first 8 seconds.
(b) Work out the total distance.



7 A bath is $\frac{1}{4}$ full.
170 more litres of water are added and the bath is then $\frac{3}{4}$ full.
Work out the capacity of the bath.

8 A rare car is worth £10,000.
Its value increases by 6% each year.
After how many whole years will it first be worth more than £12,500? (Calculator)

9 A circle has equation $x^2 + y^2 = 625$.
The point P(7, 24) lies on the circle.
(a) Find the equation of the tangent to the circle at P. Give your answer in the form $ax + by = c$, where a, b and c are integers.
(b) The tangent meets the x-axis at the point T.
Write down the coordinates of T.

10 Sofia and Amir share some money in the ratio 2 : 1.
Sofia gives Amir £3.
The ratio of their money is now 5 : 4.
How much money do they have altogether?