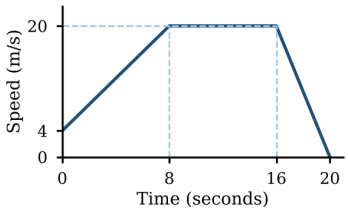
Day 147	S Tier 10-a-day
1 Write $\sqrt{252} + \sqrt{175} + \sqrt{7}$ in the form $a\sqrt{7}$ where a is an integer.	
2 The point P(3, −5) is rotated 90° anticlockwise about the origin. The image is then reflected in the y-axis. (a) Write down the coordinates of the final image of P. (b) Describe fully the single transformation that is equivalent to these two transformations.	
3 Factorise fully $5x^2 + 50x + 105$	
4 Triangle ABC has AB = 9 cm and BC = 20 cm. The area of triangle ABC is $45\sqrt{3}$ cm^2. Angle ABC is acute. Work out the size of angle ABC. Do not use a calculator.	
5 The graph shows the speed of a car during 20 seconds. (a) Work out the acceleration during the first 8 seconds. (b) Work out the average speed over the whole 20 seconds. 	

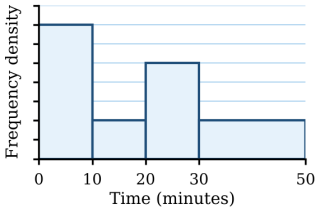
Day 147	S Tier 10-a-day

6 Solve the simultaneous equations

$y = x^2 - 4x + 3$

$y = -7x + 1$

7 The histogram shows the times of people spent waiting at a clinic.
120 of them had a time between 30 and 50 minutes.
(a) How many had a time between 10 and 20 minutes?
(b) How many people are there in total?



8 A train travels at a constant speed of 72 km/h.
It takes 20 seconds to go completely through a tunnel which is 130 m long.
Work out the length of the train, in metres.

9 $N = 2 \times 3^5$
How many of the factors of N are even numbers?

10 A is the point (4, 5) and B is the point (−4, 9).
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.