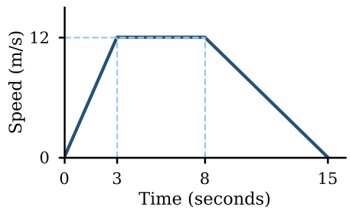
Day 178	S Tier 10-a-day
1 Work out $(3.6 \times 10^{-6})^3$ Give your answer in standard form.	
2 Triangle ABC has AB = 7 cm and BC = 8 cm. The area of triangle ABC is 14 cm^2. Angle ABC is obtuse. Work out the size of angle ABC. Do not use a calculator.	
3 Work out $(1.9 \times 10^{-3}) \times (6.4 \times 10^{-8})$ Give your answer in standard form.	
4 The curve $y = x^2 + 8x - 9$ 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 The graph shows the speed of a car during 15 seconds. (a) Work out the acceleration during the first 3 seconds. (b) Work out the average speed over the whole 15 seconds. 	

Day 178 **S Tier 10-a-day**

6 (a) Write 35 and 140 as products of prime factors.
(b) Find the HCF and the LCM of 35 and 140.
Give your answers as numbers.

7 The table gives information about 98 times.
Work out an estimate for the median.
Assume the values in each class are evenly spread.

Time, t (minutes)	Frequency
$0 < t \leq 5$	10
$5 < t \leq 10$	11
$10 < t \leq 15$	11
$15 < t \leq 20$	25
$20 < t \leq 25$	25
$25 < t \leq 30$	16

8 Tariq and Hassan play a match. The first to win 2 table tennis games wins the match.
The probability that Tariq wins any one of the table tennis games is $\frac{1}{3}$.
Work out the probability that the match needs a third one to decide it.

9 Use the iteration formula $x_{n+1} = \sqrt{7x_n + 6}$ with $x_0 = 1$ (Calculator)
to work out x_1, x_2 and x_3.
Give each answer correct to 3 decimal places.

10 OA = $\mathbf{a}$ and OB = $\mathbf{b}$.
OP = $4\mathbf{a} + \mathbf{b}$, OQ = $10\mathbf{a} - 2\mathbf{b}$ and OR = $12\mathbf{a} - 3\mathbf{b}$.
(a) Show that P, Q and R lie on a straight line.
(b) Work out the ratio PQ : QR in its simplest form.