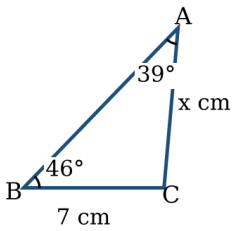
Day 300 **S Tier 10-a-day**

1 Write $\sqrt{252} - \sqrt{7} + \sqrt{175}$ in the form $a\sqrt{7}$ where a is an integer.

2 The diagram shows triangle ABC. (Calculator)
Work out the length of AC. Give your answer correct to 1 decimal place.
The diagram is not drawn accurately.

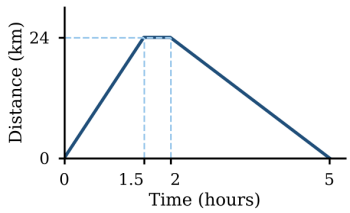


3 $f(x) = \frac{7}{x-4} + 2$

(a) Find $f^{-1}(x)$.

(b) Find the value of $f^{-1}(-5)$.

4 The graph shows Jamal's cycle ride to a café and back.
(a) Work out Jamal's speed on the way back.
(b) Work out Jamal's average speed for the whole ride, including the stop.



5 Expand and simplify $(x + 3)^2(x + 6)$

Day 300	S Tier 10-a-day
6 The point P(−1, 4) is reflected in the y-axis. The image is then rotated 90° clockwise about the origin. (a) Write down the coordinates of the final image of P. (b) Describe fully the single transformation that is equivalent to these two transformations.	
7 A train travels at a constant speed of 108 km/h. It takes 30 seconds to cross completely over a bridge which is 710 m long. Work out the length of the train, in metres.	
8 (a) Show that the equation $x^2 - 2x - 5 = 0$ has a solution between x = 3 and x = 4. (b) Show that the equation can be rearranged to give $x = 2 + \frac{5}{x}$	
9 The price of a share is decreased by x%. The new price is then increased by x%. The final price is 25% less than the original price. Work out the value of x.	
10 A cone is cut parallel to its base to make a smaller cone and a frustum. The frustum has height 21 cm, top radius 4 cm and base radius 16 cm. Work out the volume of the frustum. Give your answer in terms of π. 