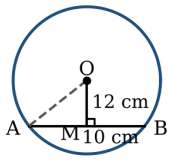
Day 91	S Tier 10-a-day

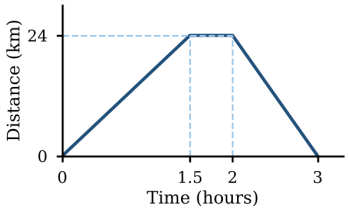
1 Work out the value of $x^2 - 3yz$
when $x = 3$, $y = -4$ and $z = 2$.

2 6 painters can paint a hall in 15 days.
After 4 days, 3 of the painters leave. The rest carry on working at the same rate.
How many more days does it take to finish?

3 AB is a chord of a circle, centre O. M is the midpoint of AB. (Calculator)
(a) Work out the radius of the circle.
(b) Work out angle AOB, to 1 decimal place.
The diagram is not drawn accurately.



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



5 A sector of a circle has radius 7 cm.
The length of the arc of the sector is $\frac{7}{2}\pi$ cm.
(a) Work out the angle of the sector.
(b) Work out the area of the sector. Give your answer to (b) in terms of π.

Day 91	S Tier 10-a-day
6 A spinner numbered 1 to 4 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.	
7 A boat leaves a harbour P and travels 69 km on a bearing of 165° to Q. (Calculator) It then travels 74 km on a bearing of 300° to R. (a) Work out the distance PR. (b) Work out the bearing of R from P. Give distances to 1 decimal place and the bearing to the nearest degree.	
8 Show that $2^{m+3} - 2^m$ is a multiple of 7 for all integer values of m.	
9 $f(x) = \frac{6x + 5}{x - 6}$ where $x \neq 6$ (a) Show that $ff(x) = x$. (b) Write down $f^{-1}(x)$.	
10 A population is increased by x% in one year and then increased by a further x% the next year. Over the two years the population increases by 10.25%. Work out the value of x.	