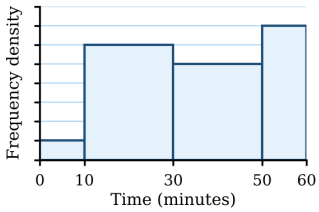
Day 2	S Tier 10-a-day

1 A point A is on level ground in line with the base of a cliff. (Calculator)
The angle of elevation of the top of the cliff from A is 51°.
B is a point on the same line, 100 m further from the cliff than A.
The angle of elevation of the top of the cliff from B is 19°.
Work out the height of the cliff. Give your answer to 1 decimal place.

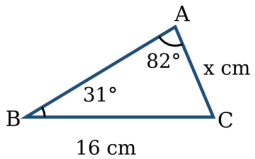
2 Work out $(2\frac{4}{5} - 1\frac{1}{2}) \times \frac{1}{2}$
Give your answer as a mixed number or a fraction in its simplest form.

3 The histogram shows the times of people spent waiting at a clinic.
70 of them had a time between 50 and 60 minutes.
(a) How many had a time between 30 and 50 minutes?
(b) How many people are there in total?



4 Work out $(7.5 \times 10^2) \div (5 \times 10^5)$
Give your answer in standard form.

5 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.



Day 2	S Tier 10-a-day
6 A and B are the points $(-8, 1)$ and $(-2, -1)$. AB is a diameter of a circle. Find an equation of the circle.	
7 The probability that the 8:15 train is late on any day is $\frac{1}{20}$. Events on different occasions are independent. Work out the probability that this happens at least once in 5 days. Give your answer correct to 3 significant figures. (Calculator)	
8 A circle has equation $(x - 3)^2 + (y - 3)^2 = 130$. The point P(12, 10) lies on the circle. Find an 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.	
9 y is directly proportional to the square of x and inversely proportional to the square of z. When $x = 2$ and $z = 2$, $y = 6$. Work out the value of y when $x = 6$ and $z = 2$.	
10 The line $y = kx - 6$ is a tangent to the curve $y = x^2 + 6$. Find the possible values of k. Give any surds in their simplest form.	