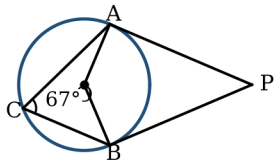
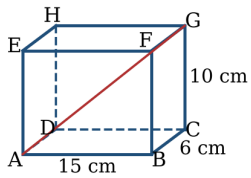
Day 246	S Tier 10-a-day
1 (a) Write $3x^2 + 30x + 84$ in the form $a(x + p)^2 + q$ (b) Write down the coordinates of the turning point of the curve $y = 3x^2 + 30x + 84$	
2 A circular arc has a chord AB of length 28 cm. The greatest distance between the chord and the arc is 2 cm. Work out the radius of the circle.	
3 A flight leaves London at 13:55 (London time). It takes 7 hours 50 minutes. When it is 12:00 in London it is 14:00 in Cairo. At what time, in Cairo time, does the flight land? Say if it is on a different day.	
4 PA and PB are tangents to a circle, centre O. C is a point on the circle. Angle ACB = 67°. (a) Work out the size of angle AOB. (b) Work out the size of angle APB. The diagram is not drawn accurately. 	
5 C is 30% less than S. S is 60% less than D. Work out C as a percentage of D.	

Day 246 **S Tier 10-a-day**

6 The table gives information about 118 masses.
Work out an estimate for the median.
Assume the values in each class are evenly spread.

Mass, m (kg)	Frequency
$0 < m \leq 20$	30
$20 < m \leq 40$	20
$40 < m \leq 60$	15
$60 < m \leq 80$	17
$80 < m \leq 100$	19
$100 < m \leq 120$	17

7 The diagram shows a cuboid ABCDEFGH.
(Calculator)
(a) Work out the length of the diagonal AG.
(b) Work out the angle between AG and the base ABCD, to 1 decimal place.
The diagram is not drawn accurately.



8 Make x the subject of $y = 2\sqrt{x + 1} - 5$

9 $N = 2^2 \times 3^2 \times 7$
How many of the factors of N are even numbers?

10 In a population of 10,000 people, 2% have a certain disease.
A test gives a positive result for 98% of people who have the disease and for 3% of people who do not.
A person is chosen at random and tests positive.
Work out the probability that they have the disease.