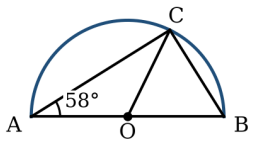
Day 110	S Tier 10-a-day
1 The mean of 7 numbers is 85. A new number is added and the mean of all 8 numbers is 74.75. Work out the new number.	
2 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 58°. (a) Work out the size of angle ACB. (b) Work out the size of angle COB. The diagram is not drawn accurately. 	
3 The rent of a flat is increased by 900%. By what percentage must the new value be decreased to get back to the original value?	
4 A sector of a circle has radius 4 cm and angle 240°. (a) Work out the length of the arc of the sector. (b) Work out the area of the sector. Give each answer in terms of π.	
5 Write $0.\dot{1}\dot{7}$ as a fraction in its simplest form.	

Day 110 **S Tier 10-a-day**

6 The line L has equation $7x - 24y = 168$.
L crosses the x-axis at the point A and the y-axis at the point B.
(a) Find the coordinates of A and B.
(b) Work out the length of AB.

7 Rhys invests £8,500 for 7 years at 2% per year compound interest.
Work out the value of the investment at the end of the 7 years.
Give your answer to the nearest penny.
(Calculator)

8 Simplify fully $\frac{x^2 - 16}{x^2 + x} \div \frac{x^2 - 11x + 28}{x}$

9 The table gives information about 86 times.
Work out an estimate for the median.
Assume the values in each class are evenly spread.

Time, t (minutes)	Frequency
$10 < t \leq 30$	9
$30 < t \leq 50$	16
$50 < t \leq 70$	30
$70 < t \leq 90$	21
$90 < t \leq 110$	10

10 The line $y = 2x + k$ is a tangent to the circle $x^2 + y^2 = 6$.
Find the possible values of k.
Give any surds in their simplest form.