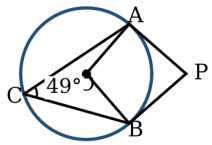
Day 67	S Tier 10-a-day

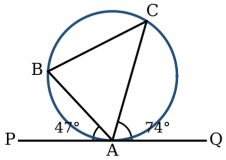
1 A bath is $\frac{7}{10}$ full.
18 more litres of water are added and the bath is then $\frac{3}{4}$ full.
Work out the capacity of the bath.

2 PA and PB are tangents to a circle, centre O. C is a point on the circle. Angle ACB = 49°.
(a) Work out the size of angle AOB.
(b) Work out the size of angle APB.
The diagram is not drawn accurately.



3 Factorise fully $(x + 4)^2 - 25$

4 PAQ is a tangent to the circle at A. B and C are points on the circle. Angle PAB = 47° and angle CAQ = 74°.
(a) Work out the size of angle ABC.
(b) Work out the size of angle ACB.
The diagram is not drawn accurately.



5 Isla, Jamal and Kira share some money.
Isla : Jamal = 8 : 5
Jamal : Kira = 3 : 5
(a) Work out the ratio Isla : Jamal : Kira.
(b) They share £128 altogether. How much money does Isla get?

Day 67	S Tier 10-a-day
6 C is 30% less than S. S is 30% more than Q. Work out C as a percentage of Q.	
7 There are 20 bacteria in a sample. The number of bacteria is multiplied by 4 every hour. After how many hours will there first be more than 10,000 bacteria?	
8 The time taken for a journey is inversely proportional to the speed. The speed is increased by 100%. Work out the percentage change in the time taken for a journey.	
9 A point A is on level ground in line with the base of a mast. (Calculator) The angle of elevation of the top of the mast from A is 38°. B is a point on the same line, 80 m further from the mast than A. The angle of elevation of the top of the mast from B is 21°. Work out the height of the mast. Give your answer to 1 decimal place.	
10 The line $y = kx - 5$ is a tangent to the curve $y = x^2 + 3$. Find the possible values of k. Give any surds in their simplest form.	