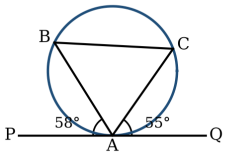
Day 51 **IGCSE 10-a-day**

1 PAQ is a tangent to the circle at A. B and C are points on the circle. Angle PAB = 58° and angle CAQ = 55°.
(a) Work out the size of angle ABC.
(b) Work out the size of angle ACB.
The diagram is not drawn accurately.



2 The mean of 9 numbers is 60.
A new number is added and the mean of all 10 numbers is 57.6.
Work out the new number.

3 $y = -x^3 - 9x^2 - x - 1$

(a) Find $\frac{d^2y}{dx^2}$.

(b) Find the value of x for which $\frac{d^2y}{dx^2} = 0$, and work out the gradient of the curve at this value of x.

4 The capacity of a tank is 1.4 litres, truncated to 1 decimal place.
Write down the error interval for the capacity of a tank, using c.

5 $y = -2x^3 - 9x^2 - 12x + 2$
Find the range of values of x for which y is decreasing.

Day 51	IGCSE 10-a-day
6 Given that $x > 0$, solve $x^{\frac{2}{3}} = 16$	
7 The price of a coat is decreased by 20% and then increased by 10%. Work out the overall percentage change. State whether it is an increase or a decrease.	
8 The curves $y = x^2 + 5x + 3$ and $y = -x^2 + 17x - 15$ touch at one point. Find the coordinates of this point and the equation of the common tangent.	
9 The lengths of the sides of a right-angled triangle are $(x + 6)$ cm, $(x - 1)$ cm and $(x + 7)$ cm. The longest side is $(x + 7)$ cm. (a) Show that $x^2 - 4x - 12 = 0$ (b) Hence work out the area of the triangle.	
10 A workshop makes x tables and y chairs each week. Each table needs 6 hours of work and 3 metres of wood. Each chair needs 2 hours of work and 6 metres of wood. There are 48 hours of work and 54 metres of wood available. The income is £7 for each table and £4 for each chair. (a) Write down two inequalities, other than $x \geq 0$, $y \geq 0$. (b) Find the greatest income.	