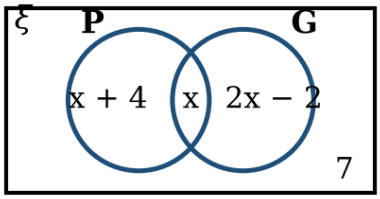
Day 251	IGCSE 10-a-day
1 Differentiate $-5x^3 - 8x - 3$ with respect to x.	
2 $C = \begin{pmatrix} -3 & -3 \end{pmatrix}$ and $A = \begin{pmatrix} 4 & 3 \\ 3 & -2 \end{pmatrix}$. (a) Write down the order of matrix C. (b) Work out CA.	
3 A curve has equation $y = -2x^3 + 3x + 6$. Find the equation of the tangent to the curve at the point where $x = -3$.	
4 A car was bought for £1,100. Each year its value decreases by the same percentage. After 2 years it is worth £176. Work out the percentage decrease each year.	
5 The value of a machine falls by 10% each year for 2 years. Work out the overall percentage decrease. Give your answer correct to 3 significant figures.	

Day 251 **IGCSE 10-a-day**

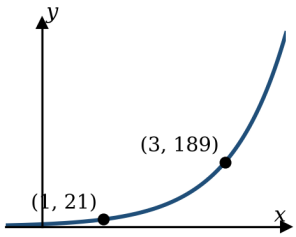
6 The Venn diagram shows how many of 45 students play the piano (P) or the guitar (G).
(a) Work out the value of x.
(b) A student is chosen at random from those who play the guitar. Work out the probability that this student also plays the piano.



7 The price of a share is decreased by x%.
The new price is then increased by x%.
The final price is 36% less than the original price.
Work out the value of x.

8 A circular arc has a chord AB of length 30 cm.
The greatest distance between the chord and the arc is 3 cm.
Work out the radius of the circle.

9 The diagram shows the graph of $y = ka^x$, where k and a are constants and $a > 0$.
The curve passes through the points (1, 21) and (3, 189).
Find the value of k and the value of a.



10 A curve has equation $y = 2x^4 - 16x^2 - 6$.
Find the coordinates of the stationary points of the curve and determine the nature of each.