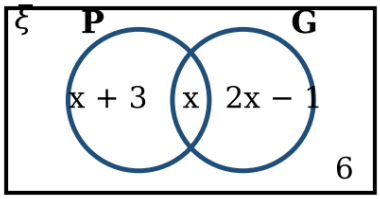
Day 164	IGCSE 10-a-day
1 Work out the gradient of the curve $y = -x^4 - 7x^3 + 6$ at the point where $x = 3$.	
2 M is directly proportional to the square of n. When n = 2, M = 12. (a) Find a formula for M in terms of n. (b) Find the value of n when M = 300.	
3 D is 15% more than A. A is 5% more than B. Work out D as a percentage of B.	
4 The function $f(x) = 2x^2 - 12x - 7$ is increasing when $x > k$. Find the value of k.	
5 Write $\sqrt{108} + \sqrt{75} - \sqrt{12}$ in the form $a\sqrt{3}$ where a is an integer.	

Day 164	IGCSE 10-a-day
6 $f(x) = \frac{4x + 2}{x - 5}$ (a) Find $f^{-1}(x)$. (b) Find the value of $f^{-1}(-18)$.	
7 67 pupils were asked which activities they do. A: play football B: play netball C: play rugby $n(A) = 30$, $n(B) = 33$, $n(C) = 35$, $n(A \cap B) = 16$, $n(A \cap C) = 9$, $n(B \cap C) = 18$, $n(A \cap B \cap C) = 4$. (a) Work out how many are in none of A, B and C. (b) Work out how many are in exactly one of A, B and C.	
8 The Venn diagram shows how many of 20 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. 	
9 A circular arc has a chord AB of length 32 cm. The greatest distance between the chord and the arc is 8 cm. Work out the radius of the circle.	
10 $y = 4x + \frac{100}{x}$ Find the values of x for which y is increasing.	