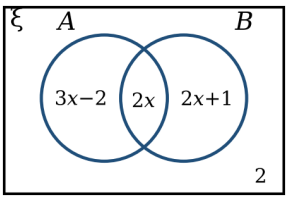
Day 207	IGCSE 10-a-day
1 $y = \frac{2x^3 - 3x}{x}$ Find $\frac{dy}{dx}$.	
2 Solve the simultaneous equations $-5x + 6y = -10$ $6x - 5y = 1$	
3 A particle P moves in a straight line. After t seconds, its displacement from a fixed point O is s metres, where $s = 2t^3 - 12t^2 + 18t + 2$ $(t \geq 0)$ Find the distance between the two positions where P is at rest.	
4 R is the region that satisfies all of these inequalities: $y < 2x + 3$ $x + y \leq 7$ $x > 3$ Which of these points lie in R? A(0, 4) B(1, 2) C(1, 10) D(6, 10) E(7, 0)	
5 x is an acute angle and $\tan x = \frac{3}{11}$. (a) Find the exact value of sin x. (b) Find the exact value of cos x. Give each answer as a fraction or a surd with a rational denominator.	

Day 207 **IGCSE 10-a-day**

6 In a coach, the ratio of the number of adults to the number of children is 5 : 8.
Then 20 adults are removed and 13 more children are added.
The ratio is now 2 : 5.
How many children were there at the start?

7 The Venn diagram shows information about 15 customers.
A: ordered tea B: ordered coffee
(a) Find the value of x.
(b) Find n(A ∩ B) and n(A ∪ B)′.



8 The table gives information about 100 times.
Work out an estimate for the median.
Assume the values in each class are evenly spread.

Time, t (minutes)	Frequency
0 < t ≤ 10	21
10 < t ≤ 20	12
20 < t ≤ 30	20
30 < t ≤ 40	30
40 < t ≤ 50	17

9 Kofi invests £9,500 in an account paying compound interest.
The interest rate is the same percentage each year.
After 2 years the account holds £18,620.
Work out the annual percentage interest rate.

10 A curve has equation $y = -x^2 - 5x + k$, where k is a constant.
The tangent to the curve at the point where x = 2 passes through (−4, 32).
Find the value of k.