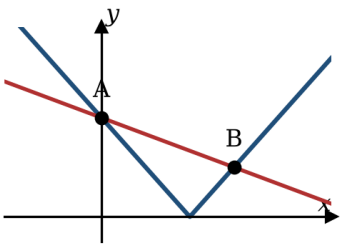
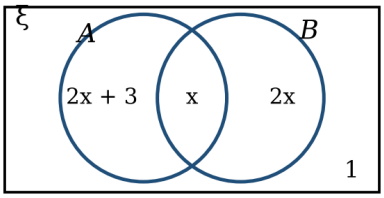
Day 179	A Level Maths: A Tier 10-a-day
1 A sector of a circle of radius 8 cm has angle 45°. Find, in terms of π, the arc length, the area and the perimeter of the sector.	
2 A 5 kg block is released from rest on a rough plane inclined at α, $\tan\alpha = \frac{4}{3}$, $\mu = 0.5$, and slides 10 m down a line of greatest slope. Use work and energy to find (a) the work done against friction, (b) its speed after 10 m. Take g = 10.	
3 Solve $2\cos^2 x + 6\sin x - 2 = 0$ for $0° \leq x \leq 180°$.	
4 The diagram shows the graphs of $y = \lvert 3x - 6 \rvert$ and $y = -x + 6$. The graphs meet at A and B. Find the coordinates of A and B. 	
5 A 2 kg particle rests on a rough plane inclined at α, $\tan\alpha = \frac{3}{4}$, $\mu = 0.4$. A force of P N acts up a line of greatest slope and the particle stays at rest. Find the range of values of P. Take g = 9.8. Give answers to 3 s.f. if not exact.	

Day 179 **A Level Maths: A Tier 10-a-day**

6 The Venn diagram shows the numbers of 44 students in sets A and B.
(a) Find the value of x.
(b) A student is chosen at random. Find P(A | B′).



7 The line $3x + 4y = k$ is a tangent to the circle $(x - 3)^2 + (y + 3)^2 = 9$.
Find the two possible values of k.

8 Solve $\cos 2\theta + 2\sin \theta = 1$
for $-180° \leq \theta \leq 180°$.

9 The second term of a geometric series is 8 and its sum to infinity is 36.
Find the two possible values of the first term.

10 25 values have $\Sigma x = 625$ and $\Sigma x^2 = 16525$.
One value was recorded as 42 but should have been 29.
Find the correct mean and standard deviation (3 s.f.).