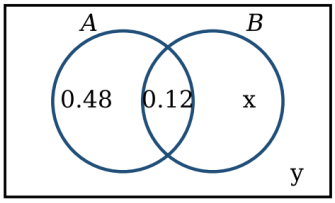
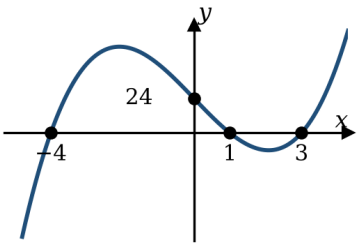
Day 174	A Level Maths: B Tier 10-a-day
1 Solve $-8 \leq 4x - 5 \leq -3$.	
2 Marks are normal: Biology N(48, 6^2), Chemistry N(50, 5^2). Anna scores 55.5 in Biology and 47.5 in Chemistry. Which is her better performance, relatively?	
3 Solve $\sin 2x = -0.5$ for $0 \leq x \leq \pi$, giving answers to 3 significant figures.	
4 A drone moves so that its position vector relative to O at time t s is $\mathbf{r} = (3t^2 - 2t)\mathbf{i} + (t^3 + 3t)\mathbf{j}$ metres. Find the velocity when t = 3, and the speed at that time.	
5 Use the substitution u = ln x to find the exact value of $\int_1^e \frac{(\ln x)^3}{x}\,dx$.	

Day 174 **A Level Maths: B Tier 10-a-day**

6 The Venn diagram shows probabilities for events A and B, which are independent.
Find the values of x and y.



7 The diagram shows a sketch of the curve y = f(x), where f is a cubic. The curve meets the axes at the labelled points. Find f(x) in factorised form.



8 A particle moves so that at time t s its velocity is $\mathbf{v} = (t^2 + 5)\mathbf{i} + (2t - 4)\mathbf{j}$ m s^{-1}.
Find the time when the particle is moving in the direction of **i**, and its speed then.

9 Given that $\sum_{r=1}^{n}(2r - 2) = 56$, find the value of n.

10 Line l_1: $\mathbf{r} = \begin{pmatrix} -2 \\ -1 \\ -2 \end{pmatrix} + \lambda \begin{pmatrix} 1 \\ -1 \\ 0 \end{pmatrix}$.

Line l_2: $\mathbf{r} = \begin{pmatrix} 0 \\ -6 \\ -4 \end{pmatrix} + \mu \begin{pmatrix} 0 \\ 3 \\ 2 \end{pmatrix}$.

Show that l_1 and l_2 intersect and find the point.