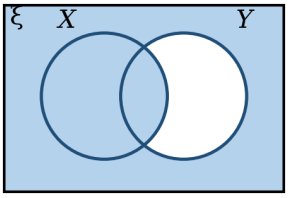
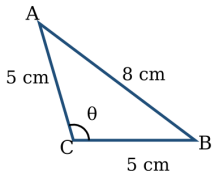
Day 143	IGCSE 10-a-day
1 Write down the set notation for the region shaded in the Venn diagram. 	
2 The ratio of blue to green sweets in a tin is 9 : 2. Then $\frac{2}{3}$ of the blue and $\frac{1}{3}$ of the green are taken out. Work out the ratio of blue to green now.	
3 Show that $(6 + 3\sqrt{3})(6 - 3\sqrt{3})$ is an integer.	
4 A population of members of a website starts at 3,000 and grows by 25% each year. After how many whole years will the population first be at least double its starting value? (Calculator)	
5 A curve has equation $y = 2x^3 - 15x^2 + 24x + 5$. Find the coordinates of the stationary points of the curve.	

Day 143 **IGCSE 10-a-day**

6 The diagram shows triangle ABC. (Calculator)
(a) Work out angle ACB, marked θ, to 1 decimal place.
(b) Work out the area of triangle ABC to 3 significant figures.
The diagram is not drawn accurately.



7 p = 7.3 and r = 6.6, each correct to 1 decimal place.
q = 4.64, correct to 2 decimal places.
Work out the upper bound of $\frac{p + q}{r}$. Give your answer correct to 3 significant figures.
(Calculator)

8 The curves $y = x^2 - 2x - 4$ and $y = 2x^2 + 4x + 5$ touch at one point.
Find the coordinates of this point and the equation of the common tangent.

9 Show algebraically that the sum of the cubes of any three consecutive integers is a multiple of 9.

10 $y = -x^4 + 2x^2 - 2$
Find the coordinates of the stationary points of the curve and determine the nature of each.