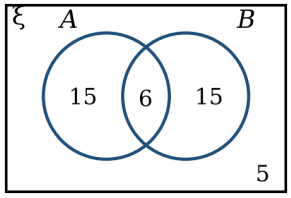
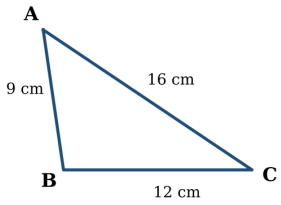
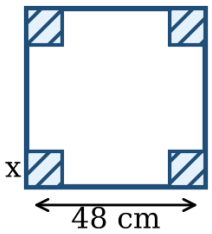
Day 121	IGCSE 10-a-day
1 Work out the value of $(p - q)^2 - (p + q)^2$ when $p = -1$, $q = -1$ and $r = 1$.	
2 Maya drives 45 km at an average speed of 45 km/h. The drive then continues for another 105 km at an average speed of 35 km/h. Work out the average speed for the whole journey.	
3 Chen invests £3,500. The account pays compound interest of 4% a year for the first 2 years, then 2.5% a year for the next 2 years. Work out the total amount after 4 years, to the nearest penny. (Calculator)	
4 The Venn diagram shows information about 41 students. A: study French B: study Spanish (a) Find $n(A \cap B')$. (b) Find $n(B')$. 	
5 The curve $y = x^3 - 3x^2 - x$ has gradient 8 at two points. Find the coordinates of these points.	

Day 121	IGCSE 10-a-day

6 Work out the area of triangle ABC.
Give your answer correct to 3 significant figures. (Calculator)



7 Squares of side x cm are cut from the corners of a 48 cm square card sheet, which is folded into an open box of volume V cm^3.
(a) Show that $V = 4x^3 - 192x^2 + 2304x$.
(b) Find x for the maximum volume, and this volume.



8 A plane leaves an airport P and travels 115 km on a bearing of 010° to Q. (Calculator)
It then travels 102 km on a bearing of 255° to R.
(a) Work out the distance PR.
(b) Work out the bearing of R from P.
Give distances to 1 decimal place and the bearing to the nearest degree.

9 $y = x^4 - 18x^2 + 4$
Find the coordinates of the stationary points of the curve and determine the nature of each.

10 A circle has equation $x^2 + y^2 = 289$.
The point P(−15, 8) lies on the circle.
(a) Find the equation of the tangent to the circle at P. Give your answer in the form ax + by = c, where a, b and c are integers.
(b) The tangent meets the x-axis at the point T.
Write down the coordinates of T.