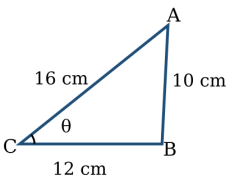
Day 330	IGCSE 10-a-day
1 A particle P moves in a straight line. After t seconds its displacement from a fixed point O is s metres, where $s = -t^2 + 7t + 9 + \frac{12}{t}$ $(t > 0)$ Find (a) the velocity of P, (b) the acceleration of P, when t = 1.	
2 Here are 11 numbers. 49, 7, 32, 45, 3, 42, 37, 56, 12, 12, 11 Find (a) the median (b) the interquartile range.	
3 A curve has equation $y = -2x^2 - 3x - 4$. The gradient at the point P on the curve is -19. Find the coordinates of P.	
4 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.  	
5 $y = x(x - 1)(x + 1)$ Work out the gradient of the curve at the point where $x = -1$.	

Day 330	IGCSE 10-a-day
6 $f(x) = \frac{x+3}{3}$ and $g(x) = x^2 + 6x - 1$. Solve $f^{-1}(x) = g(x)$.	
7 An alloy is made by mixing 100 cm^3 of aluminium with 100 cm^3 of tin. The density of aluminium is 2.7 g/cm^3. The density of tin is 7.3 g/cm^3. Work out the density of the alloy.	
8 Show that the line $y = 3x - 30$ is a tangent to the circle $x^2 + y^2 = 90$. Find the coordinates of the point where the line touches the circle.	
9 A point A is on level ground in line with the base of a cliff. (Calculator) The angle of elevation of the top of the cliff from A is 45°. B is a point on the same line, 80 m further from the cliff than A. The angle of elevation of the top of the cliff from B is 17°. Work out the height of the cliff. Give your answer to 1 decimal place.	
10 $N = 2^2 \times 3 \times 5$ How many factors does N have? Include 1 and N.	