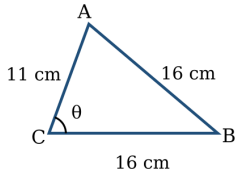
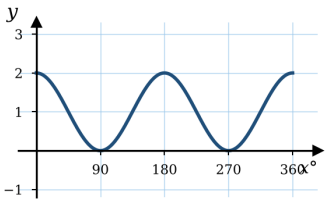
Day 54	IGCSE 10-a-day
1 P is directly proportional to the square of t. When t = 10, P = 600. (a) Find a formula for P in terms of t. (b) Find P when t = 6.	
2 A point A is on level ground in line with the base of a cliff. (Calculator) The angle of elevation of the top of the cliff from A is 53°. B is a point on the same line, 25 m further from the cliff than A. The angle of elevation of the top of the cliff from B is 41°. Work out the height of the cliff. Give your answer to 1 decimal place.	
3 The 5-digit number 66k46 is a multiple of 9. k is a single digit. Find all the possible values of k.	
4 The equation of a curve is $y = 4x^2 - 2x - \frac{10}{x}$. Work out the gradient of the curve at the point where x = 2.	
5 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. 	

Day 54 **IGCSE 10-a-day**

6 A circle has centre C(−4, 3) and passes through the point P(−2, −6).
Find an equation of the circle.

7 The diagram shows the graph of $y = a \cos bx° + c$ for $0 \leq x \leq 360$.
a, b and c are integers.
Find the values of a, b and c.



8 A tank is a cuboid with a square base of side x metres and height h metres, and has a closed top. Its volume is 343 m^3.
(a) Show that the total outside surface area, A m^2, is $A = 2x^2 + \frac{1372}{x}$.
(b) Find the minimum possible value of A, showing that it is a minimum.

9 A shop mixes two types of flour.
Type A costs £11.00 per kg and type B costs £5.00 per kg.
They are mixed in the ratio A : B = 1 : 3.
The mixture is sold for £7.80 per kg.
Work out the percentage profit.

10 The diagram shows the curve $y = 6 - 2x^2$.
Rectangle ABCD has A, B on the x-axis and C, D on the curve. B is (x, 0).
(a) Show that the area of ABCD is $-4x^3 + 12x$.
(b) Find the maximum area of ABCD, showing that it is a maximum.

