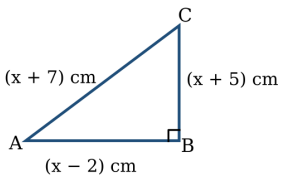
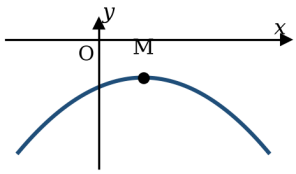
Day 106	IGCSE 10-a-day
1 A and B are two events. P(A) = 0.8, P(B) = 0.4 and P(A or B) = 0.85 (a) Work out P(A and B). (b) Are A and B independent? You must show your working.	
2 Sparkle Cleaners has a call-out fee of £4 plus £5.50 per hour. Fresh Start has a call-out fee of £25 plus £2 per hour. (a) Work out the number of hours for which the two costs are the same. (b) Which is cheaper for 11 hours, and by how much?	
3 Solve $-6x + 1 \leq -4x + 19$	
4 The temperature, T °C, of a cup of tea t minutes after it is removed from a heat source is modelled by $T = 20 + \frac{32}{t}$ $(t \geq 1)$ (a) Find $\frac{dT}{dt}$ when t = 4. (b) Find the value of t when the temperature is falling at 32 °C per minute.	
5 A right-angled triangle has base $(4 + \sqrt{7})$ cm and height $(4 - \sqrt{7})$ cm. Show that the area of the triangle is a rational number. Work out the area.	

Day 106 **IGCSE 10-a-day**

6 ABC is a right-angled triangle with sides (x − 2) cm, (x + 5) cm and (x + 7) cm. The longest side is (x + 7) cm.
(a) Find the value of x.
(b) Work out the area of the triangle.
The diagram is not drawn accurately.



7 The diagram shows a sketch of the curve $y = ax^2 + bx - 5$.
The curve has a turning point at M(1, −4).
Find the values of a and b.



8 A shop mixes two types of flour.
Type A costs £11.00 per kg and type B costs £14.00 per kg.
They are mixed in the ratio A : B = 1 : 3.
The mixture is sold for £18.55 per kg.
Work out the percentage profit.

9 A closed cylinder (a can) has radius r cm, height h cm and total surface area 24π cm^2.
(a) Show that its volume, V cm^3, is $V = 12\pi r - \pi r^3$.
(b) Find the maximum value of V in terms of π, and show that h = 2r when V is a maximum.

10 A = (−4, −2), B = (−9, 2) and C = (1, 2).
Show that triangle ABC is isosceles.