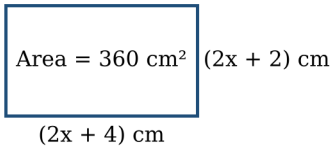
**Day 131** **IGCSE 10-a-day**

**1** Work out the value of $(a - b)^2 - (a + b)^2$ when $a = -1$, $b = -4$ and $c = -2$.

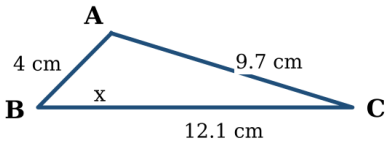
**2** Work out the gradient of the curve $y = -2x^3 + 4x^2 + 5x$ at the point where $x = 0$.

**3** The diagram shows a rectangle of length $(2x + 4)$ cm, width $(2x + 2)$ cm and area 360 $cm^2$.
(a) Show that $4x^2 + 12x - 352 = 0$.
(b) Work out the perimeter of the rectangle.




**4** An arithmetic sequence has term 4 equal to 23 and term 7 equal to 29.
(a) Find an expression for the nth term.
(b) Find the first term of the sequence that is greater than 300.

**5** $f(x) = -6x^{5/2} - 6x^{3/2}$
Find $f'(x)$ and work out the value of $f'(1)$.

| Day 131 | IGCSE 10-a-day |
|---|---|
| **6** Work out the size of angle B.<br>Give your answer correct to 1 decimal place.<br>(Calculator)<br><br> | |
| **7** The tangent to the curve $y = x^3 + 2x^2 + 3x - 6$ at the point P where $x = -1$ meets the curve again at Q.<br>Find the coordinates of Q. | |
| **8** A rectangle has area $(14 + 7\sqrt{2})$ cm$^2$ and length $(3 + \sqrt{2})$ cm.<br>Find the width of the rectangle.<br>Give your answer in the form $a + b\sqrt{2}$ | |
| **9** Nadia invested £2,500 in a savings account for 2 years.<br>Compound interest was paid at a fixed rate per year.<br>At the end of the 2 years the account held £2,809.<br>Work out the annual rate of interest.<br>(Calculator) | |
| **10** The volume of a cube is 689 cm$^3$, correct to the nearest cm$^3$.<br>Work out the upper bound of the edge length of the cube.<br>Give your answer correct to 3 significant figures. (Calculator) | |