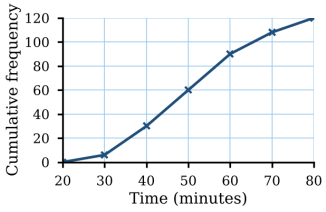
| Day 83 | IGCSE 10-a-day |
|---|---|
| **1** The interior angles of a pentagon are<br>$x°$, $(2x + 10)°$, $(x + 5)°$, $(2x - 20)°$, $(2x + 25)°$<br>(a) Work out the value of x.<br>(b) Work out the size of the largest angle. | |
| **2** A curve has equation $y = x + \frac{18}{x}$.<br>Find the coordinates of the points on the curve where the gradient is $-1$. | |
| **3** Solve $3x^2 + 10x - 25 = 0$ | |
| **4** Here are six numbers.<br>$\sqrt[3]{27}$, $2\pi - \pi$, $(2 + \sqrt{5})(2 - \sqrt{5})$, $\frac{\sqrt{20}}{\sqrt{5}}$, $\sqrt{3} \times \sqrt{5}$, $\pi \div 2$<br>Write down the irrational numbers. | |
| **5** Solve $2 \sin x = \sqrt{3}$ for $0° \leq x \leq 360°$.<br>Do not use a calculator. | |

**Day 83** **IGCSE 10-a-day**

**6** The cumulative frequency graph gives information about the times of 120 students to complete a puzzle.
(a) Find an estimate for the median and the interquartile range.
(b) Estimate how many of the 120 had a time greater than 75.




**7** The nth term of a sequence is $3n^2 + 7n + 5$.
(a) Show that the difference between the (n + 1)th term and the nth term is 6n + 10.
(b) Two consecutive terms of the sequence differ by 40. Find the value of n for the first of these two terms.

**8** A curve has equation $y = 2x^3 + 18x^2 + 52x - 1$. Find the minimum value of the gradient of the curve, and the value of x at which it occurs.

**9** $g(x) = x^2 - 4x + 5$ for $x \leq 2$.
(a) Find the range of g.
(b) Find $g^{-1}(x)$.

**10** The diagram shows the curve $y = 27 - x^2$. 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 $-2x^3 + 54x$.
(b) Find the maximum area of ABCD, showing that it is a maximum.

