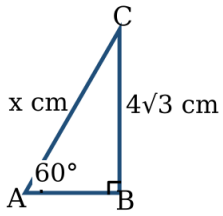
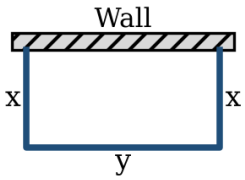
Day 192	IGCSE 10-a-day
1 ABC is a right-angled triangle. Work out the exact value of x. Give your answer in its simplest form. The diagram is not drawn accurately.  	
2 $f(x) = -2x^2 - 12x + 3$ Use differentiation to find the coordinates of the turning point of the graph of y = f(x). State whether it is a maximum or a minimum.	
3 The ratio of Year 10 students to Year 11 students in a school is 1 : 3. 30% of the Year 10 students and 80% of the Year 11 students have a part-time job. What percentage of all of these students have a part-time job?	
4 $y = x^3 - 3x^2 - 24x - 9$ Find the range of values of x for which y is decreasing.	
5 $M = \begin{pmatrix} 1 & 0 \\ 0 & 4 \end{pmatrix}$. (a) Find the coordinates of the image of the point (3, 3) under the transformation represented by M. (b) Describe fully the single transformation represented by M.	

Day 192 **IGCSE 10-a-day**

6 Solve $x^{\frac{4}{3}} = 16$
$x > 0$

7 A farmer uses 56 m of fencing to enclose a rectangle against a wall, as shown.
(a) Show that the area, A m^2, is $A = 56x - 2x^2$.
(b) Find the maximum area, proving it is a maximum.



8 The table gives information about the times of some people.
Work out an estimate for the mean time.
Give your answer correct to 1 decimal place.
(Calculator)

Time, t (minutes)	Frequency density
$0 < t \leq 10$	0.4
$10 < t \leq 25$	0.6
$25 < t \leq 40$	0.6
$40 < t \leq 60$	0.2

9 p = 9.2 and r = 6, each correct to 1 decimal place.
q = 3.9, correct to 2 decimal places.
Work out the upper bound of $\frac{p - q}{r}$. Give your answer correct to 3 significant figures.
(Calculator)

10 Show that $\sqrt{70 + 24\sqrt{6}} = 4 + 3\sqrt{6}$