Day 119	IGCSE 10-a-day
1 $f(x) = 2x^2 + 4x + 3$ and $g(x) = 14x - 9$. Solve $f(x) = g(x)$.	
2 Solve $\frac{x-3}{8} - \frac{x-7}{2} = 5$	
3 The volume, V cm^3, of a cube of edge x cm is $V = x^3$. (a) Find $\frac{dV}{dx}$ when $x = 2$. (b) Find the value of x when $\frac{dV}{dx} = 243$.	
4 9 painters can paint a hall in 24 days. After 3 days, 6 of the painters leave. The rest carry on working at the same rate. How many more days does it take to finish?	
5 A curve has equation $y = 3x^3 - 2x + 4$. Find the equation of the normal to the curve at the point where $x = 0$.	

Day 119 **IGCSE 10-a-day**

6 The table gives information about 92 lengths.
Work out an estimate for the median.
Assume the values in each class are evenly spread.

Length, l (cm)	Frequency
$0 < l \leq 10$	16
$10 < l \leq 20$	5
$20 < l \leq 30$	23
$30 < l \leq 40$	25
$40 < l \leq 50$	23

7 A point A is on level ground in line with the base of a tower. (Calculator)
The angle of elevation of the top of the tower from A is 44°.
B is a point on the same line, 100 m further from the tower than A.
The angle of elevation of the top of the tower from B is 27°.
Work out the height of the tower. Give your answer to 1 decimal place.

8 A rectangle has area 54 cm^2, correct to 2 significant figures.
Its length is 9.19999999999999928945726423989981412887573242187 5 cm, correct to 2 significant figures.
Work out the upper bound of the width of the rectangle. Give your answer correct to 3 significant figures. (Calculator)

9 The curves $y = x^2 - 5x + 2$ and $y = -2x^2 + x - 1$ touch at one point.
Find the coordinates of this point and the equation of the common tangent.

10 A van is worth £10,000 when new.
Its value decreases by 12% each year.
After how many whole years will it first be worth less than £2,500? (Calculator)