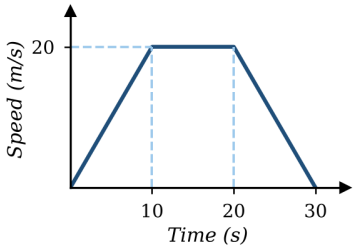
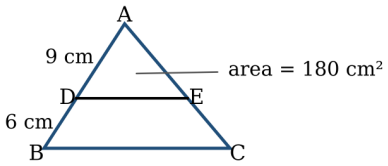
Day 315	IGCSE 10-a-day
1 $f(x) = -3x + 2$ and $g(x) = x^2 + 2x - 1$. (a) Work out g(1). (b) Work out fg(−1).	
2 The graph of $y = -2x^2 + 8x - 4$ has a turning point at P. Find the equation of the tangent to the curve at P.	
3 The 4-digit number 504k is a multiple of 8. k is a single digit. Find all the possible values of k.	
4 A ball is thrown upwards. Its height above the ground, h metres, after t seconds is given by $h = -4t^2 + 40t$ (a) Work out the greatest height reached by the ball. (b) Work out the velocity of the ball when t = 6. State whether it is moving up or down.	
5 The graph shows the speed of a train between two stations. (a) Work out the acceleration in the first 10 seconds. (b) Work out the total distance. 	

Day 315 **IGCSE 10-a-day**

6 In the diagram, DE is parallel to BC. AD = 9 cm, DB = 6 cm and the area of triangle ADE is 180 cm^2.
Work out the area of the trapezium DBCE.
The diagram is not drawn accurately.



7 The price of a watch is increased by 50%.
Later the new price is reduced by 40% in a sale.
The sale price is £297.
Work out the price before the increase.
(Calculator)

8 A bakery makes x cakes and y loaves in a morning.
Each cake needs 5 minutes of oven time and 1 kg of flour. Each loaf needs 3 minutes of oven time and 3 kg of flour.
There are 75 minutes of oven time and 39 kg of flour available.
The profit is £3 for each cake and £7 for each loaf.
(a) Write down two inequalities, other than $x \geq 0$, $y \geq 0$. (b) Find the greatest profit.

9 P is the point $(p, \frac{1}{2}p^2)$ on the curve $y = \frac{1}{2}x^2$, where $p \neq 0$.
The normal to the curve at P meets the y-axis at the point Q.
Show that the y coordinate of Q is $\frac{1}{2}p^2 + 1$.

10 Show that $\sqrt{17 + 12\sqrt{2}} = 3 + 2\sqrt{2}$