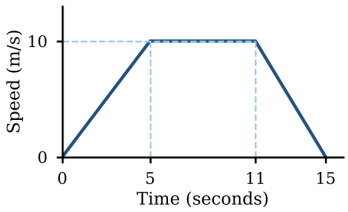
Day 208	IGCSE 10-a-day
1 M is directly proportional to the square root of n. When n = 9, M = 45. (a) Find a formula for M in terms of n. (b) Find M when n = 36.	
2 The normal to the curve $y = x^2 + 2x$ at the point P where $x = -2$ meets the curve again at Q. Find the coordinates of Q.	
3 Solve $6x^2 - 23x = -20$	
4 The graph shows the speed of a car during 15 seconds. (a) Work out the acceleration during the first 5 seconds. (b) Work out the average speed over the whole 15 seconds. 	
5 The mass of a sample is increased by 150%. By what percentage must the new value be decreased to get back to the original value?	

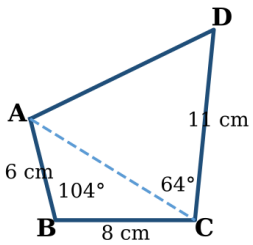
Day 208	IGCSE 10-a-day

6 A company makes and sells x thousand items.
All amounts are in thousands of pounds.
The revenue is R = x(36 − 2x) and the cost is C = 4 + 4x.
(a) Show that the profit P = R − C is P = $-2x^2$ + 32x − 4.
(b) Find the number of items that must be sold for the profit to be a maximum, and this maximum profit.

7 The graph of y = f(x) has a minimum point at (−2, −5).
Write down the coordinates of the turning point of the graph of
(a) y = f(x) + 5
(b) y = f(2x) − 3

8 f(x) = $-x^3 - 3x^2 + 9x - 5$ for $-4 \leq x \leq 2$.
Find the greatest value and the least value of f(x) on this interval.

9 In quadrilateral ABCD, AB = 6 cm, BC = 8 cm, CD = 11 cm,
angle ABC = 104° and angle ACD = 64°.
Work out the area of ABCD. Give your answer correct to 3 significant figures. (Calculator)



10 Solve $9^{x-1} = 27^{2x}$