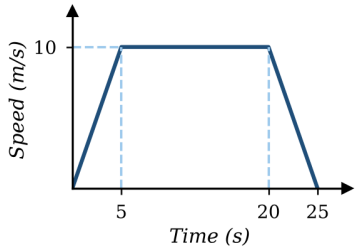
Day 184	IGCSE 10-a-day
1 Work out the gradient of the curve $y = 2x^4 - x^3 + 4x^2$ at the point where $x = -3$.	
2 There are 49 members of a club. 12 of them play chess and 12 of them play badminton. 27 of them do neither. (a) Work out how many do both. (b) One of the members of a club is chosen at random. Find the probability that they only play chess.	
3 The curve $y = x^2 - 8x + 12$ crosses the x-axis at the points A and B. (a) Find the coordinates of A and B. (b) Find the coordinates of the minimum point of the curve.	
4 There are 50 bacteria in a sample. The number of bacteria is multiplied by 3 every hour. After how many hours will there first be more than 5,000 bacteria?	
5 (a) Write 882 and 2352 as products of prime factors. (b) Find the HCF and the LCM of 882 and 2352. Give your answers as numbers.	

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6 The graph shows the speed of a train between two stations.
(a) Work out the acceleration in the first 5 seconds.
(b) Work out the total distance.



7 The line $y = x + 8$ meets the curve $y = 3x^2 + x + 8$.
Show that the line is a tangent to the curve and find the coordinates of the point where they touch.

8 A rectangle has area 87 cm^2, correct to 2 significant figures.
Its length is 13 cm, correct to 2 significant figures.
Work out the lower bound of the width of the rectangle. Give your answer correct to 3 significant figures. (Calculator)

9 A particle moves in a straight line. After t seconds its displacement from a fixed point is s metres, where
$s = t^3 - 6t^2 + 17t - 4$
(a) Show that the particle is never at rest.
(b) Find the least speed of the particle and the time it occurs.

10 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 45°.
(a) Work out the size of angle ACB.
(b) Work out the size of angle COB.
The diagram is not drawn accurately.

