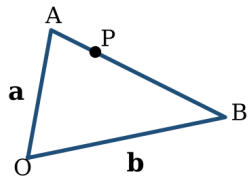
Day 126	A Level Maths: C Tier 10-a-day
1 A cyclist moves in a straight line with constant acceleration 4 m s^{-2}. Its initial speed is 1 m s^{-1}. Find the distance travelled in 9 s.	
2 Find an equation of the line through A(−5, −4) and B(2, 1), in the form ax + by + c = 0, where a, b and c are integers.	
3 $y = x^3 + 3x^2 - 9x + 1$. Find the coordinates of the stationary points and determine their nature.	
4 Each time a spinner is spun the probability of red is 0.4. Find the probability of getting red at least once in 4 spins, to 3 s.f.	
5 Evaluate $\sum_{r=1}^{20} (6r + 8)$.	

Day 126 **A Level Maths: C Tier 10-a-day**

6 Express 24 sin x + 7 cos x in the form R sin(x + α), where R > 0 and 0° < α < 90°.
Give α to 1 decimal place.

7 The probability that a machine is set up wrongly is 0.6. If so, the probability that an item is faulty is 0.7; otherwise it is 0.4.
Given that an item is faulty, find the probability that a machine is set up wrongly.

8 In the diagram, OA = **a**, OB = **b**, and P lies on AB with AP : PB = 1 : 3.
Find AB and OP in terms of **a** and **b**.



9 $f(x) = 2x^3 + 6x^2 - 2x - 6$
(a) Show that (x − 1) is a factor of f(x).
(b) Factorise f(x) completely.

10 The graph shows the velocity of a train over 21 seconds as it moves in a straight line.
(a) Find its acceleration in the first 4 s.
(b) Find the total distance travelled.

