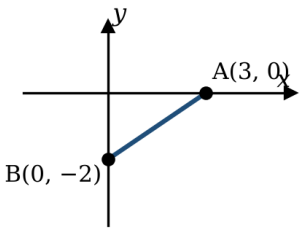
Day 54 **A Level Maths: C Tier 10-a-day**

1 A and B are mutually exclusive, with P(A) = 0.5 and P(B) = 0.2.
(a) Find P(A ∪ B).
(b) Find the probability that neither A nor B happens.

2 The diagram shows a line meeting the axes at A and B.
Find (a) the equation of AB in the form px + qy = r with integers p, q and r, (b) the length AB.



3 Simplify $\frac{\sin x}{\tan x}$.

4 The equation $2x^2 + 4x + c = 0$ has equal roots.
Find the value of c.

5 Solve $5 \tan x = 3$ for $0 \leq x \leq 2\pi$.
Give your answers to 3 significant figures.

Day 54	A Level Maths: C Tier 10-a-day

6 A car of mass 1000 kg tows a caravan of mass 800 kg on a level road with acceleration 0.75 m s^{-2}. Resistances: 400 N on the car, 100 N on the caravan. Find the driving force and the tow bar tension.

7 Solve $6^{3x} = 30$.
Give your answer to 3 significant figures.

8 Express $\frac{-2x - 14}{(x - 1)(x - 5)}$ in partial fractions.

9 A population is N(μ, 4^2). H_0: $\mu = 125$, H_1: $\mu < 125$.
A sample of 49 has mean $\bar{x} = 123.11$.
Test at the 5% level. Critical value: $z = -1.645$.

10 The graph shows the velocity of a car over 21 seconds as it moves in a straight line.
(a) Find its acceleration in the first 5 s.
(b) Find the total distance travelled.

