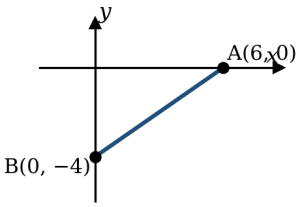
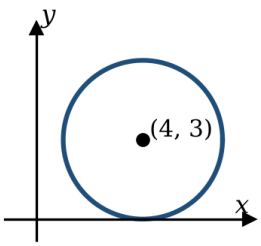
Day 88 **A Level Maths: C Tier 10-a-day**

1 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.



2 For 20 values, $\Sigma x = 500$ and $\Sigma x^2 = 12820$.
Find the mean and the standard deviation.

3 The diagram shows a circle with the centre marked.
The circle touches the x-axis. Find the equation of the circle.



4 Variables x and y satisfy $y = ax^n$. A graph of $\log_{10} y$ against $\log_{10} x$ is a straight line with gradient 4 and intercept 1.1.
Find n and a, giving a to 3 significant figures.

5 A crate is on the point of sliding down a rough plane inclined at α to the horizontal, where $\tan \alpha = \frac{8}{15}$. Find the coefficient of friction.

Day 88	A Level Maths: C Tier 10-a-day
6 The curve $y = x^2$ and the line $y = 4x$ meet at the origin and at P. Find the area enclosed between them.	
7 When $x^3 + kx^2 + 2x + 59$ is divided by $(x + 3)$, the remainder is -1. Find the value of k.	
8 Use a double angle formula to find $\int \cos^2 5x \, dx$.	
9 Three forces $(-5\mathbf{i} + 2\mathbf{j})$ N, $(p\mathbf{i} + q\mathbf{j})$ N and $(\mathbf{i} + \mathbf{j})$ N act on a particle which is in equilibrium. $\mathbf{i}$ and $\mathbf{j}$ are perpendicular unit vectors. Find the values of p and q.	
10 $X \sim B(40, p)$. H_0: $p = 0.5$, H_1: $p > 0.5$. Find the critical region for a test at the 10% significance level.	