



QUESTION WORKBOOK

Straight lines

Coordinate geometry · Year 12–13

7 questions · 25 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

- A1** Find the equation of the line through $(1, 3)$ and $(4, -3)$, giving your answer in the form $ax + by + c = 0$ with integer coefficients. [3]

- A2** Write down the gradient of any line perpendicular to a line of gradient $\frac{2}{3}$, and of any line perpendicular to a line of gradient -4 . [2]

SECTION B · Standard

- B1** Find the equation of the perpendicular bisector of the segment joining $(1, 2)$ and $(7, 10)$. [4]

- B2** Find the equation of the line through $(4, -1)$ perpendicular to the line $2x + 3y - 6 = 0$. [3]

- B3** The height in centimetres of a burning candle after t hours is modelled by $H = 30 - 2.5t$. Interpret the numbers 30 and 2.5, find when the height is 10 cm, and state when the model must stop applying. [5]

SECTION C · Stretch

- C1** The line l_1 has equation $3x + 4y - 12 = 0$. The line l_2 passes through the origin and is perpendicular to l_1 . Find the coordinates of the point where the two lines meet, and hence find the shortest distance from the origin to l_1 . [6]

- C2** A vertical line and a horizontal line are perpendicular, yet the rule $m_1m_2 = -1$ cannot be applied to them. Explain why not. [2]
