Straight-Line Graphs

Graphs · 6 questions · step-by-step answers at the end

Name: Date: Score: / 6

USEFUL EQUATIONS

$y = mx + c$ $m = (y_2 - y_1)/(x_2 - x_1)$ $m_1 \times m_2 = -1$ $d = \sqrt{((x_2 - x_1)^2 + (y_2 - y_1)^2)}$

Questions

Show your working in the space under each question.

1. EASY Find the gradient of the line through (0, 1) and (2, 7).

2. EASY Does the point (3, 5) lie on $y = 2x - 1$?

3. MEDIUM Find the gradient and y-intercept of $2x + 3y = 12$.

4. MEDIUM Find the line parallel to $y = 4x - 3$ through (2, 1).

5. HARD Find the midpoint and length of the line joining (1, 2) and (7, 10).

6. HARD Find the perpendicular bisector of the line joining (0, 0) and (4, 2).

Step-by-step answers

Straight-Line Graphs

1. $(7 - 1)/(2 - 0) = \mathbf{3}$.

2. $2(3) - 1 = 5$. **Yes**.

3. Rearrange: $3y = -2x + 12$, $y = -(2/3)x + 4$. **Gradient $-2/3$, intercept 4**.

4. Same gradient 4: $1 = 8 + c$, so $c = -7$. **$y = 4x - 7$**.

5. Midpoint: (4, 6). Length: $\sqrt{(6^2 + 8^2)} = \sqrt{100} = \mathbf{10}$.

6. Midpoint (2, 1). Gradient of the line is 1/2, so the perpendicular gradient is -2. $1 = -4 + c$ gives $c = 5$. **$y = -2x + 5$**.