6.10 Quiz corrections: Slope-intercept form of linear equations   8.F.A.3

1. Two lines are shown in the graph below.

   (a) Write down their equations in slope-intercept form.
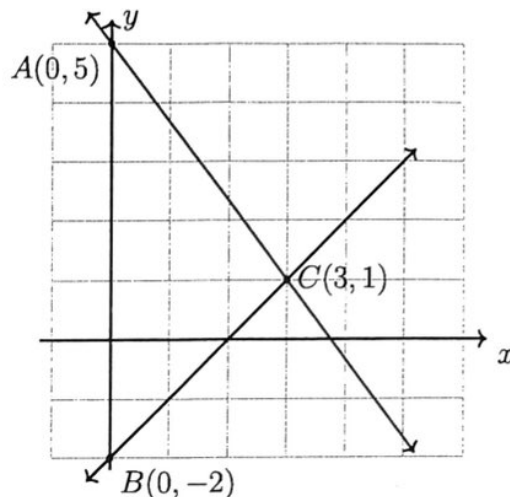
   $$y = -\frac{4}{3}x + 5$$

   $$y = x - 2$$

   (b) Write down their intersection as an ordered pair.

   $$(3, 1)$$

   (c) Show that the lines are not perpendicular by taking the product of their slopes.
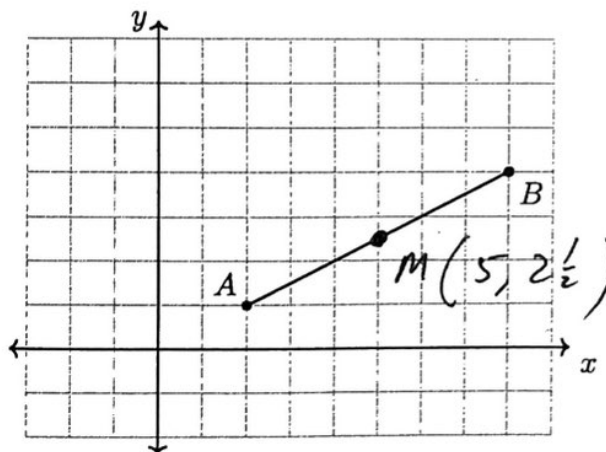
   $$\left(-\frac{4}{3}\right)(1) = -\frac{4}{3} \neq -1$$

$A(0,5)$

$C(3,1)$

$B(0,-2)$

The midpoint formula

2. Write down the midpoint formula.

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

3. In the diagram below, $\overline{AB}$ has endpoints with coordinates $A(2,1)$ and $B(8,4)$. Find the coordinates of the midpoint M of $\overline{AB}$. Mark and label it on the graph.

$$M = \left(\frac{2+8}{2}, \frac{1+4}{2}\right)$$

$$= \left(5, 2\frac{1}{2}\right)$$

B

A

$M\left(5, 2\frac{1}{2}\right)$
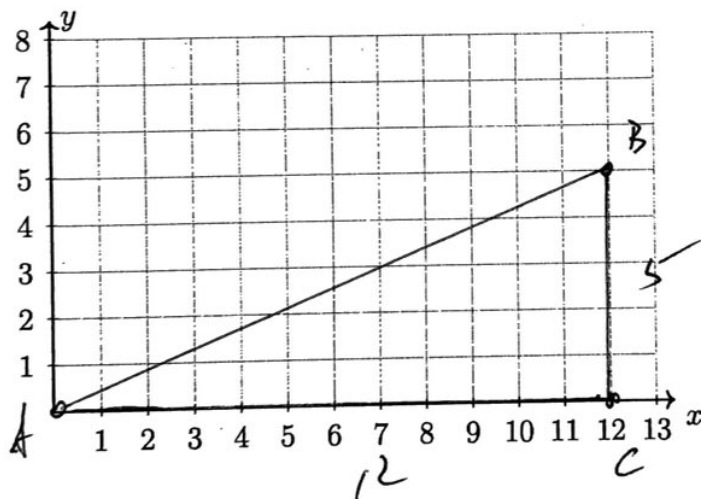
The distance formula

4. Write down the distance formula.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

5. What is the length of $\overline{PQ}$ if $P(2, 1)$ and $Q(10, 7)$?

$$PQ = \sqrt{(10-2)^2 + (7-1)^2}$$
$$= \sqrt{8^2 + 6^2}$$
$$= \sqrt{64 + 36} = \sqrt{100} = 10$$

6. Graph and label $\triangle ABC$. Calculate the lengths of its sides. $A(0, 0)$, $B(12, 5)$, $C(12, 0)$.

$$AC = 12$$
$$BC = 5$$

$$AB = \sqrt{12^2 + 5^2}$$
$$= \sqrt{144 + 25}$$
$$= \sqrt{169}$$
$$= 13$$

7. Write the linear equation $4x + 2y = 10$ in the form $y = mx + b$.

$$2y = -4x + 10 \qquad -4x$$
$$y = -2x + 5$$