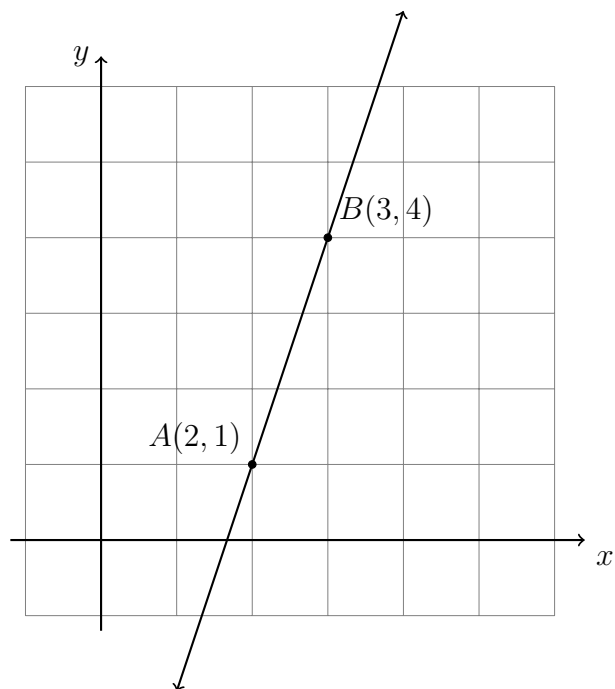


### 6.3 Slope formula

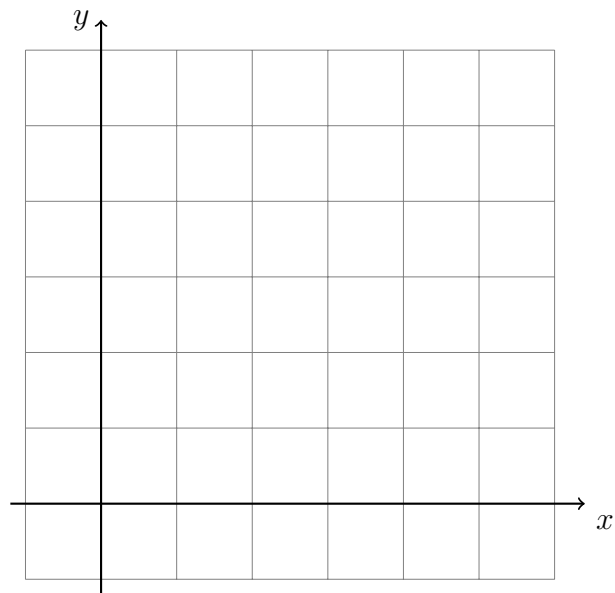
1. Find the slope of the line  $\overleftrightarrow{AB}$ ,  $A(2, 1)$ ,  $B(3, 4)$ . Use the formula and show the substitution step.

$$m = \frac{y_B - y_A}{x_B - x_A}$$



2. Plot the points and find the slope of the line  $\overleftrightarrow{RS}$ ,  $R(1, 3)$ ,  $S(3, 4)$ . Use the formula and show the substitution step. As a check, draw the line and count the rise and run.

$$m = \frac{y_S - y_R}{x_S - x_R}$$



3. Find the equation of the given line  $\overleftrightarrow{AB}$ ,  $A(0, 4)$ ,  $B(4, 2)$ .

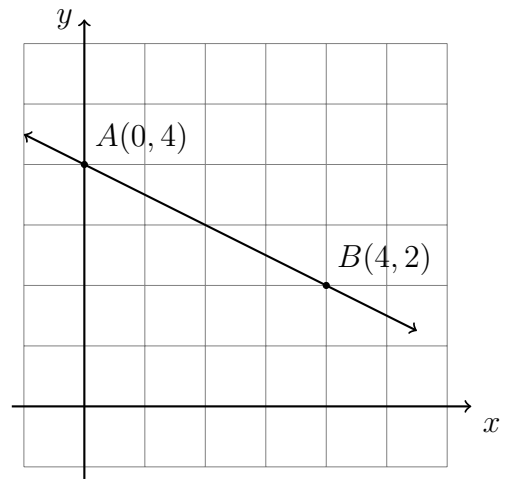
- (a) Find the slope,  $m$ , showing the substitution step in the slope formula:

$$m = \frac{y_B - y_A}{x_B - x_A}$$

- (b) Write down the  $y$ -intercept.

- (c) Write the equation of the line in the slope-intercept form

$$y = mx + b$$



4. Complete each statement about linear equations.

(a) What is the slope of a horizontal line?

(b) What is the  $y$ -intercept of the line  $y = 2x + 3$ ?

(c) What is the slope of the line  $y = x - 5$ ?

(d) Which has an undefined slope, a vertical or horizontal line?

(e) What is the  $y$ -intercept of the line  $y = -2x$ ?

5. Two parallel lines are shown in the graph,  $p$  and  $q$ .

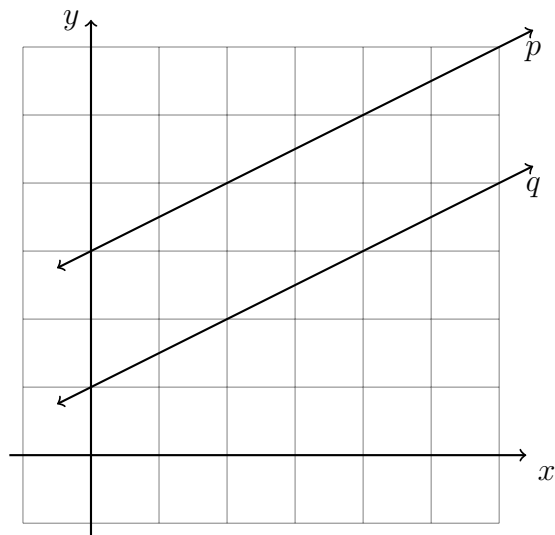
- (a) Find the slope,  $m$ , by counting squares across and up on the line.

$$m = \frac{\text{rise}}{\text{run}}$$

- (b) True or false: parallel lines have equal slopes.

- (c) Write the slope of a line perpendicular to  $p$  (the negative reciprocal).

$$m_{\perp} =$$



6. Write down the slope perpendicular to each slope (its negative reciprocal).

(a) If  $m = 2$  then  $m_{\perp} =$

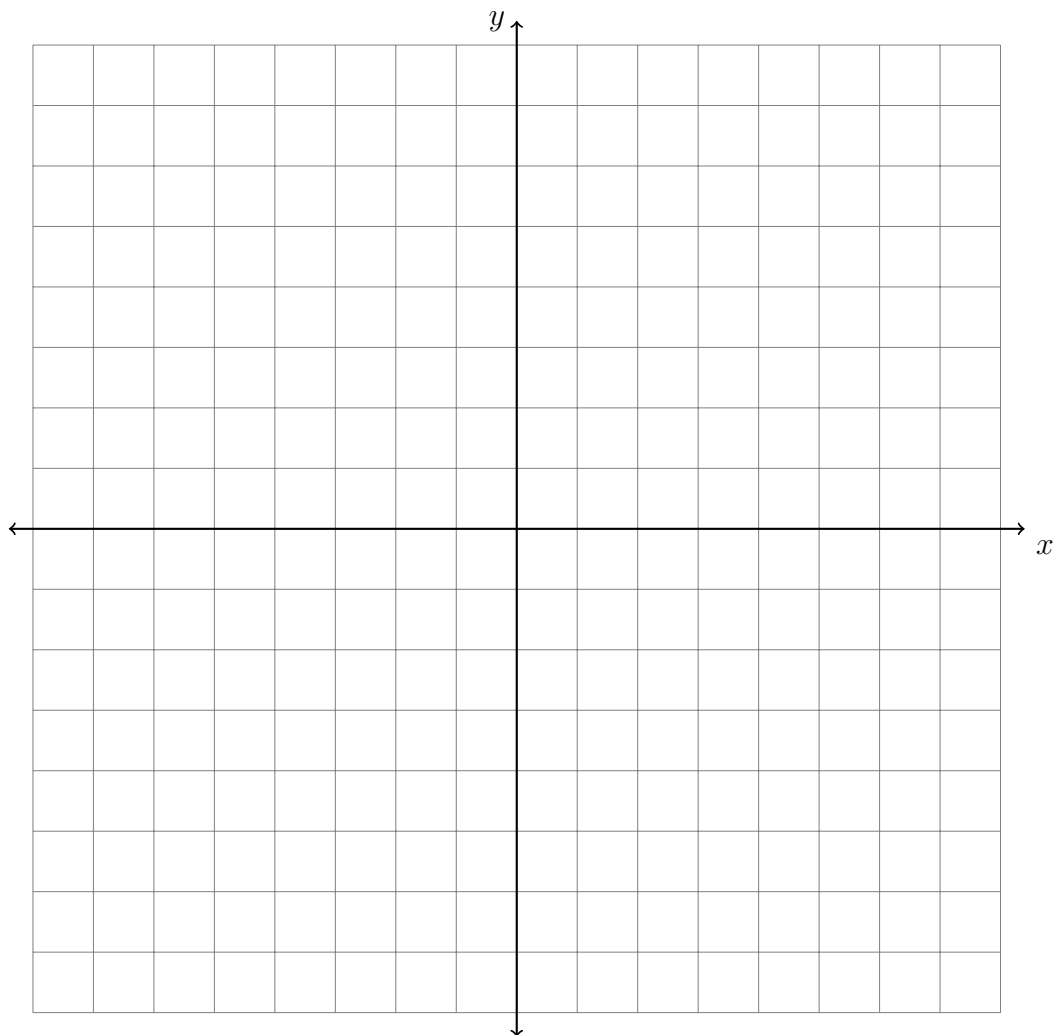
(b) If  $m = -3$  then  $m_{\perp} =$

(c) If  $m = \frac{2}{3}$  then  $m_{\perp} =$

(d) If  $m = -\frac{3}{4}$  then  $m_{\perp} =$

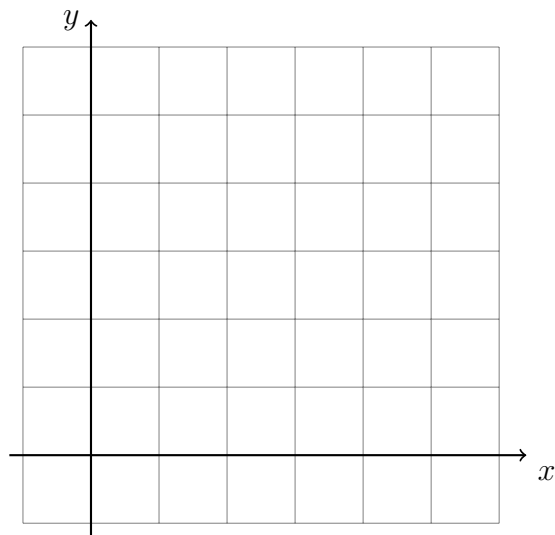
7. Plot the  $\triangle ABC$  with vertices  $A(2, 2)$ ,  $B(5, 1)$ , and  $C(6, 4)$ .

Find the slopes of  $\overleftrightarrow{AB}$  and  $\overleftrightarrow{AC}$ . Is the triangle a right triangle?



8. Is the point  $C(4, 2)$  on the line  $l : y = \frac{1}{2}x + 1$ ?

Support your answer with *both* algebra (substitute  $C$ 's coordinates into the equation) and geometry by graphing the line and point  $C$ .





9. Plot the same triangle as problem 7 using Geogebra/classic. Paste an image of your work in this Classkick slide from the clipboard or by using the “camera” tool.

Spicy: measure the slopes of the relevant triangle sides and the measure of  $\angle B$