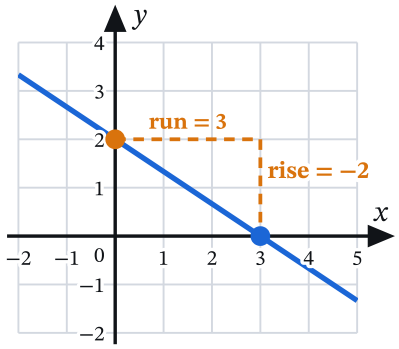
Names (pair) _____ Date _____

From Graph to Equation

Example



y-intercept: the graph crosses the y-axis at $(0, 2)$, so $b = 2$.

Slope triangle: 3 right, 2 down, so $m = \frac{-2}{3} = -\frac{2}{3}$.

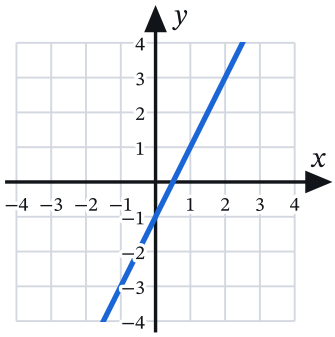
Equation: $y = -\frac{2}{3}x + 2$.

Remember

From a graph: read b on the y-axis and m from the slope triangle. From two points: $m = \frac{y_2 - y_1}{x_2 - x_1}$, then $b = y_1 - mx_1$. Through the point (x_1, y_1) with slope m: $y - y_1 = m(x - x_1)$ (point-slope form).

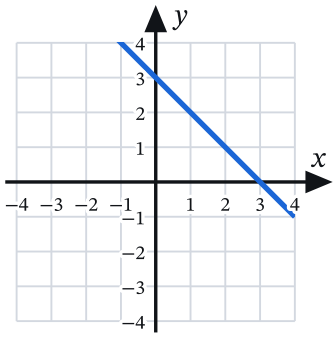
1 IN PAIRS Write the equations of the lines.

a)



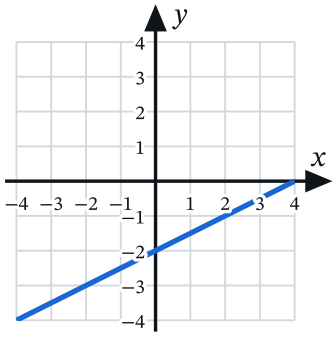
$y =$ ☐

b)



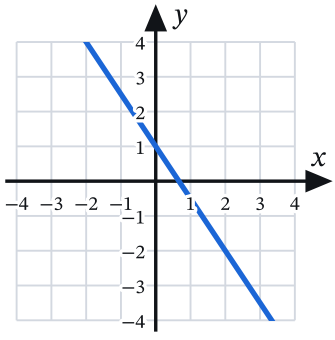
$y =$ ☐

c)



$y =$ ☐

d)



$y =$ ☐

Names (pair) _____ Date _____

2 ON YOUR OWN Find the equation of the line through two points.

Points	m	b	Equation
$A(1, 3), B(3, 7)$	$\frac{\square}{\square} = \square$	$\square$	$y = \square$
$A(-2, 5), B(2, -1)$	$\frac{\square}{\square} = \square$	$\square$	$y = \square$
$A(0, -4), B(6, 0)$	$\frac{\square}{\square} = \square$	$\square$	$y = \square$

3 ON YOUR OWN A line passes through T with the given slope m. Write $y - y_1 = m(x - x_1)$ and simplify.

$T(2, 1)$, $m = 3$

$\square$

$y = \square$

$T(-1, 4)$, $m = -2$

$\square$

$y = \square$

4 IN PAIRS **Find the mistake.** Marko: points $(1, 2)$ and $(3, 8)$, so $m = \frac{3 - 1}{8 - 2} = \frac{1}{3}$.

---

5 IN PAIRS Pair game: one of you draws a line through two grid points, the other writes its equation. Swap roles three times.

The Line Explorer app · otooly.com/line-explorer

Two points mode and **Guess the line** (Graph → equation).

The Geoboard app · otooly.com/geoboard

Functions board, task Band → equation.

★ ON YOUR OWN **Exit card.** The line through $(0, -1)$ and $(2, 3)$: $y = \square$