Name _____ Class _____ Date _____

# Reteaching 3-5

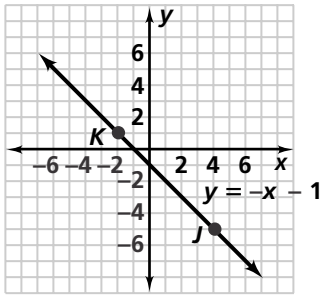
**Lines in the Coordinate Plane**

**OBJECTIVE:** Writing and graphing equations of lines

**MATERIALS:** Graphing paper

If you know two points on a line, or if you know one point and the slope of a line, then you can find the equation of the line.

## Example




Write an equation of the line that contains the points $J(4, -5)$ and $K(-2, 1)$. Graph the line.

If you know two points on a line, first find the slope using $m = \frac{y_2 - y_1}{x_2 - x_1}$.

$$m = \frac{1 - (-5)}{-2 - 4} = \frac{6}{-6} = -1$$

Now you know two points and the slope of the line. Select one of the points to substitute for $(x_1, y_1)$. Then find the equation using the point-slope form $y - y_1 = m(x - x_1)$.

$y - 1 = -1(x - (-2))$ Substitute.

$y - 1 = -1(x + 2)$ Simplify within parentheses. You may leave your equation in this form or further simplify to find the slope-intercept form.

$y - 1 = -x - 2$

$y = -x - 1$

Answer: Either $y - 1 = -1(x + 2)$ or $y = -x - 1$ is acceptable.

## Exercises

**Write an equation for the line with the given slope that contains the given point. Graph each line.**

**1.** slope 2, $(2, -2)$

**2.** slope $\frac{1}{3}$, $(-6, -2)$

**3.** slope $-1$, $(-3, 0)$

**4.** slope $\frac{5}{6}$, $(-6, -3)$

**5.** slope $-\frac{1}{2}$, $(-4, 3)$

**6.** slope 0, $(3, 1)$

**Write an equation for the line containing the given points. Graph each line.**

**7.** $(2, 3), (4, -4)$

**8.** $(-4, 5), (3, -2)$

**9.** $(0, 1), (-5, -1)$

**10.** $(1, 1), (6, 1)$

**11.** $(-3, 0), (-5, 4)$

**12.** $(-3, 4), (-3, -1)$

**Write an equation for the line with the given information. Graph each line.**

**13.** contains point $(4, -2)$, slope $-3$

**14.** contains points $(3, -1), (5, 5)$

**15.** contains point $(2, 1)$, slope $\frac{1}{4}$

**16.** contains point $(8, -2)$, slope $-\frac{3}{4}$

**17.** contains points $(-4, 5), (-3, 4)$

**18.** contains points $(1, 1), (2, 1)$