5.3 Write Linear Equations in Point-Slope Form

Slope - Intercept Form: $y = mx + b$

m b

Point - Slope Form: $y - y_1 = m(x - x_1)$

(x_1, y_1) m

Standard Form: $Ax + By = C$

Skill #11: Write an equation of the line in point - slope form given a slope and a point on the line.

EXAMPLE 1 **Write an equation in point-slope form**

Write an equation in point-slope form of the line that passes through the point (4, −3) and has a slope of 2.

Your Turn !

You Try: Skill #11

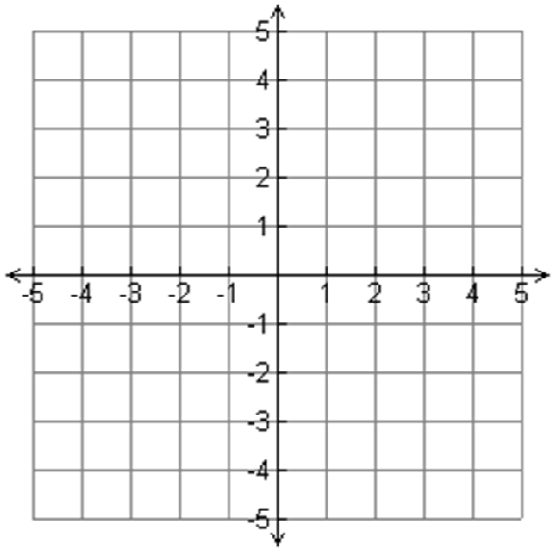
Write an equation in point-slope form of the line that passes through the point $(-1, 4)$ and has a slope of -2.

Don't forget to show your work and write down your answer !

Skill #12: Graph a linear equation given a point - slope form.

EXAMPLE 2 **Graph an equation in point-slope form**

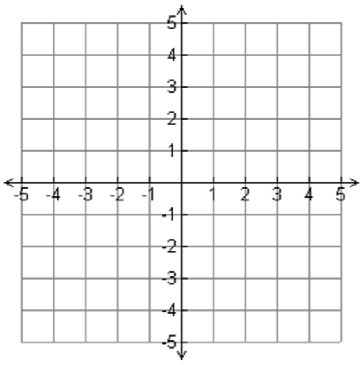
Graph the equation $y + 2 = \frac{2}{3}(x - 3)$.



Your Turn !

You Try: Skill #12

Graph the equation $y - 1 = -(x - 2)$.

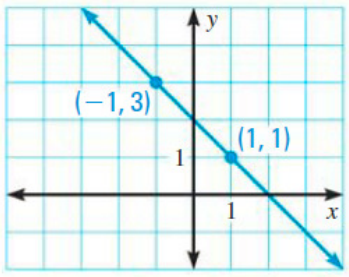


Don't forget to show your work and write down your answer !

Skill #13: Write an equation of the line in point - slope form given a graph with two points labeled.

EXAMPLE 3 **Use point-slope form to write an equation**

Write an equation in point-slope form of the line shown.



Your Turn !

You Try: Skill #13

Write an equation in point-slope form of the line that passes through the points (2, 3) and (4, 4).

Don't forget to show your work and write down your answer !

Skill #14: Model a real - world situation given a table of values.

EXAMPLE 5 **Write a real-world linear model from a table**

WORKING RANCH The table shows the cost of visiting a working ranch for one day and night for different numbers of people. Can the situation be modeled by a linear equation? *Explain*. If possible, write an equation that gives the cost as a function of the number of people in the group.

Number of people	4	6	8	10	12
Cost (dollars)	250	350	450	550	650

Your Turn !

You Try: Skill #14

MAILING COSTS The table shows the cost (in dollars) of sending a single piece of first class mail for different weights. Can the situation be modeled by a linear equation? Explain. If possible, write an equation that gives the cost of sending a piece of mail as a function of its weight (in ounces).

Weight (ounces)	1	4	5	10	12
Cost (dollars)	0.37	1.06	1.29	2.44	2.90

Don't forget to show your work and write down your answer !