4-2 & 4-3 Practice and Extend

Key

Graph each equation from point slope form, then simplify to slope intercept and standard form

1. $y+2=-\frac{1}{4}(x-3)$ ×4

point: (3, -2)

slope: $-\frac{1}{4}$

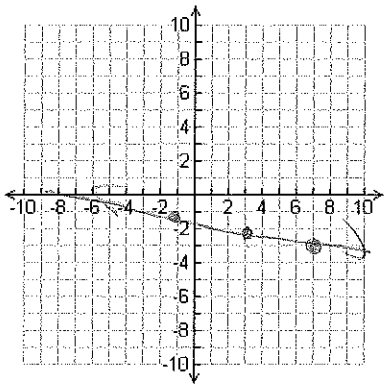
$4y+8=-(x-3)$

$4y+8=-x+3$

$4y+x=-5$

$y+2=-\frac{1}{4}x+\frac{3}{4}$ −2 −2 $(\frac{8}{4})$

$y=-\frac{1}{4}x-\frac{5}{4}$



2. $y-1=-\frac{2}{3}(x-5)$ ×3

point (5, 1)

slope $-2/3$

$-3y+3=2(x-5)$

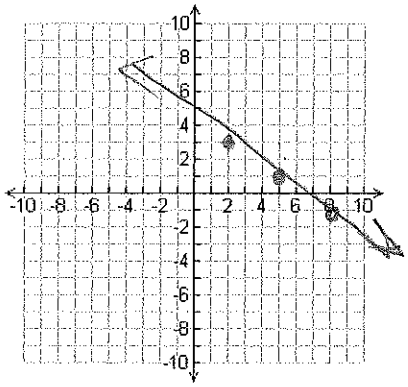
$-3y+3=2x-10$ +10 +10

$-3y+10=2x+3y$ +3y

$2x+3y=10$

$y-1=-\frac{2}{3}x+\frac{10}{3}+\frac{3}{3}$ +1

$y=-\frac{2}{3}x+\frac{13}{3}$



3. $y+4=\frac{1}{3}(x+7)$ ×3

point (−7, −4)

slope: 1/3

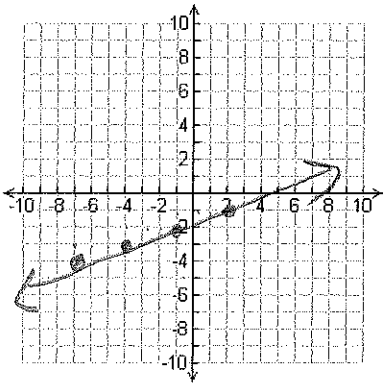
$3y+12=x+7$

$-1(-x+3y=-5)$

$x-3y=5$

$y+4=\frac{1}{3}x+\frac{7}{3}$ −4 −4 $-\frac{12}{3}$

$y=\frac{1}{3}x-\frac{5}{3}$



4. $y+8=-\frac{5}{3}(x-4)$ ×3

pt. (4, −8)

slope $-\frac{5}{3}$

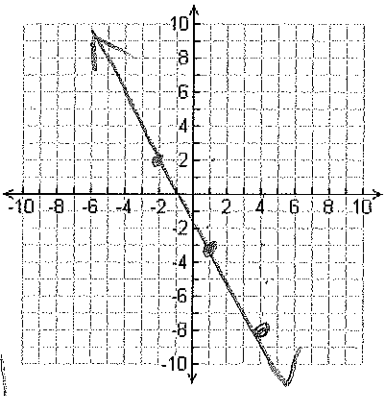
$3y+24=-5(x-4)$

$3y+24=-5x+20$

$5x+3y=-4$

$y+8=-\frac{5}{3}x+\frac{20}{3}-8$ −8 −8

$y=-\frac{5}{3}x-\frac{4}{3}$



Determine if the given point is on the line. Explain why or why not.

5. $(3, -1); y = \frac{1}{3}x + 5$

$-1 = \frac{1}{3}(3) + 5$

$-1 = 1 + 5$ no!

Doesn't make equation true

6. $(6, -2); y = \frac{1}{2}x - 5$

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

$-2 = 3 - 5$

$-2 = -2$ ✓

yes makes equation true.

7. Consider the standard form of a linear equation: Ax + By = C

a. Rewrite the equation in slope intercept form. $\frac{By}{B} = -\frac{A}{B}x + \frac{C}{B}$

b. What is the slope? $-\frac{A}{B}$

c. What is the y intercept? $\frac{C}{B}$

Without converting into slope intercept form, identify the slope and the y intercept of each of the following equations.

8. 3x + 4y = 12

slope: $-\frac{3}{4}$

y intercept: 3

9. 5x – 7y = 21

slope: $\frac{5}{7}$

y intercept: -3

10. 4x – 10 y = - 15

slope: $\frac{10}{4} = \frac{5}{2}$

y intercept: $3/2$

11. -2x + 5y = 10

slope: $\frac{2}{5}$

y intercept: 2

12. Write the equation of the line passing through the points $\left(\frac{5}{4}, 1\right)$ *and* $\left(-1, \frac{3}{4}\right)$ in slope intercept form.

$m = \frac{\frac{3}{4} - 1}{-1 - \frac{5}{4}}$

$\frac{\frac{3}{4} - \frac{4}{4}}{-\frac{4}{4} - \frac{5}{4}} = \frac{-\frac{1}{4}}{-\frac{9}{4}}$

$\frac{-1}{4}, \frac{-4}{9}$

$= \frac{1}{9}$

$\frac{5}{4}, 1$

$y - 1 = \frac{1}{9}\left(x - \frac{5}{4}\right)$

$y - 1 = \frac{1}{9}x - \frac{5}{36} + \frac{36}{36}$

$+1 \quad +1$

$y = \frac{1}{9}x + \frac{31}{36}$