

Lines: Lesson 5

Standard Form: Notes

answer key!

Name: _____

MATH ALL

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

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

Standard Form: $Ax + By = C$

A, B, and C are integers.

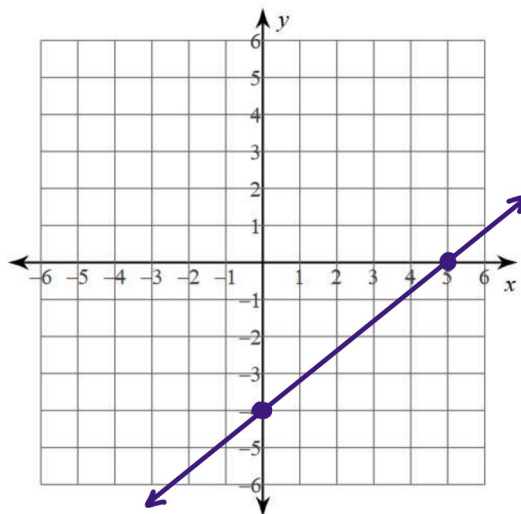
2 methods to graph $4x - 5y = 20$

Option 1:

Turn into $y = mx + b$

$$\begin{array}{r}
 4x - 5y = 20 \\
 \underline{-4x} \quad \quad -4x \\
 -5y = -4x + 20 \\
 \underline{-5} \quad \quad \underline{-5} \quad \underline{-5} \\
 y = \frac{4}{5}x - 4
 \end{array}$$

\swarrow slope \swarrow y.int

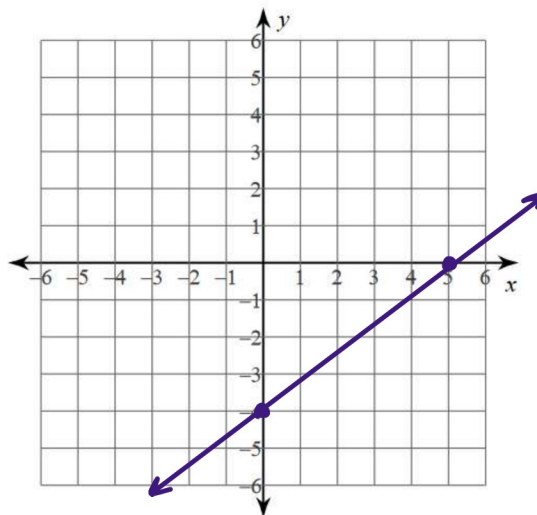


Option 2:

Find x and y intercepts. $x=0 \rightarrow$ $y=0$

$$4x - 5y = 20$$

$$\begin{array}{l}
 (5, 0) \quad (0, -4) \\
 4x - 5(0) = 20 \quad 4(0) - 5y = 20 \\
 4x = 20 \quad \quad -5y = 20 \\
 x = 5 \quad \quad \quad y = -4
 \end{array}$$



Turn equations into standard form:

1. Move the x and y terms to one side, the constant on the other.
2. If there are any fractions, multiply the entire equation by the least common denominator.

Turn this equation into standard form:

$$\begin{array}{r}
 \cancel{\frac{-3}{4}y} = \cancel{\frac{1}{2}x} - 7 \\
 + \frac{3}{4}y \qquad + \frac{3}{4}y \\
 \hline
 0 = \frac{1}{2}x + \frac{3}{4}y - 7 \\
 +7 \qquad \qquad \qquad +7 \\
 \hline
 7 = \frac{1}{2}x + \frac{3}{4}y \\
 28 = 2x + 3y \\
 \boxed{2x + 3y = 28}
 \end{array}$$

Summary of the three forms:

Slope-Intercept	Point-Slope	Standard
$y = mx + b$ $y = \frac{-5}{6}x + 2$	$y - y_1 = m(x - x_1)$ $y - 6 = \frac{-5}{6}(x + 3)$	$Ax + By = C$ $5x + 6y = 12$
Tells us: <u>slope (-5/6)</u> <u>y-intercept (2)</u>	Tells us: <u>point (-3, 6)</u> <u>slope (-5/6)</u>	Tells us: <u>nothing, really!</u>