Graphing ordered pairs: To graph a point, move along the x-axis first, and then along the y-axis $(x,y)$.

Ex. Graph $(-3,-1)$ Move to the left 3, then down 1.

You try: Graph the following on the axis provided:

$$A\left(-2,2\right) $$

$$B\left(5,-4\right)$$

$$C\left(0,3\right)$$

$$D(1,0)$$

Graphing a line:

1. Slope-intercept form $y=mx+b$ *m* stands for the slope, and *b* is the y-intercept

First mark the y-intercept on the y-axis. Then move from that point with the slope $\left(\frac{rise}{run}\right)$

Move up or down first (down if the slope is negative), and then move to the right

Ex. $y=-\frac{2}{3}x+1$ Start at 1 on the y-axis, then down 2, to the right 3

 Connect the 2 points with a line.

You try:

$y=\frac{3}{4}x-3$ $y=-2x+4$ $y=-2$ What about $x=-2$?

Standard form $ax+by=c$ Ex: $3x+2y=6$

Option 1: Change into slope-intercept for to graph

$2y=-3x+6$ $y=-\frac{3}{2}x+3$

Option 2: Find the x and y intercepts and graph those points.

x-intercept ($y=0)$

$3x+2\left(0\right)=6$ $3x=6$ $x=2$ Graph $(2,0)$

y-intercept ($x=0)$

$3\left(0\right)+2y=6$ $2y=6$ $y=3$ Graph $(0,3)$

You try, using either method:

$3x+y=-3$ $x+2y=2$ $2x-5y=10$



Find the slope (m):

From a graph, choose 2 points, then From 2 ordered pairs, use $\frac{y\_{2}-y\_{1}}{x\_{2}-x\_{1}}$

figure out the $\frac{rise}{run}$ $\left(7,1\right) and \left(1,-3\right)$

 $\frac{2}{1}=2$, but since $\frac{-3-1}{1-7}=\frac{-4}{-6}=\frac{2}{3}$

 the line heads $m=\frac{2}{3}$

 downhill, it’s a

 negative slope,

 So $m=-2$

You try: Find the slope (m).

 $\left(12,-2\right) and (4,2)$ $\left(-1,3\right) and (1,8)$

Write an equation in slope-intercept form: Once you have *m* and *b*, write the equation $y=mx+b$

Given the slope and an ordered pair Given 2 ordered pairs

Ex. $m=\frac{1}{4} and (-8,3)$ Ex. $\left(6,6\right) and (4,-2)$

Use the ordered pair to find *b* Find *m* first.

$3=\frac{1}{4}\left(-8\right)+b$ $3=-2+b$ $b=5$ $m=\frac{y\_{2}-y\_{1}}{x\_{2}-x\_{1}}=\frac{-2-6}{4-6}=\frac{-8}{-2}=4$

Equation: $y=\frac{1}{4}x+5$ Choose one ordered pair to find *b*

 $-2=4\left(4\right)+b$ $-2=16+b$ $b=-18$

 Equation: $y=4x-18$

You try:

$m=3 and (2,5)$ $m=-\frac{3}{4} and (-4,1)$

$\left(3,5\right) and (5,3)$ $\left(-3,7\right) and (-6,5)$