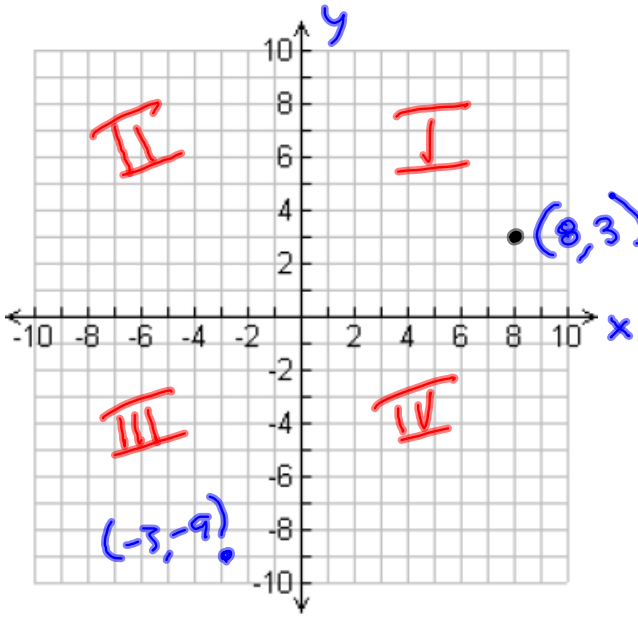
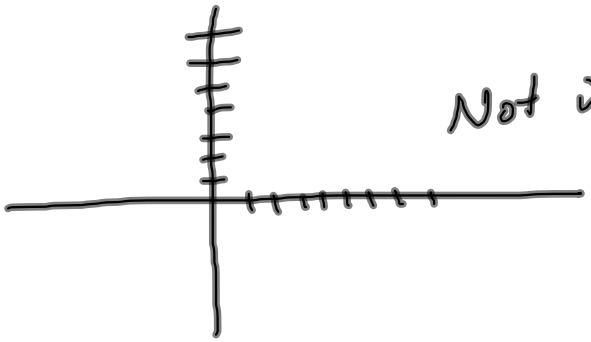
§ 3.1 Graphing (Linear) Equations.



Cartesian Plane.

Ordered Pairs.

Parentheses.



Not interested in tickmarks.
To earn points on graphs, label key points as ordered pairs.

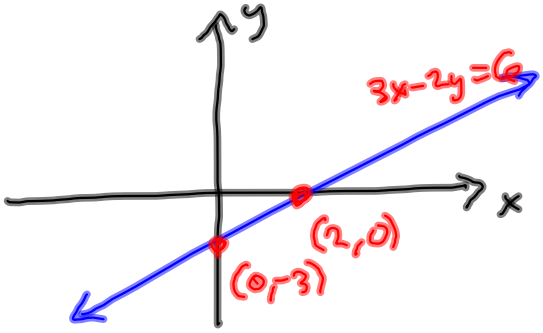
Example Graph $3x-2y=6$

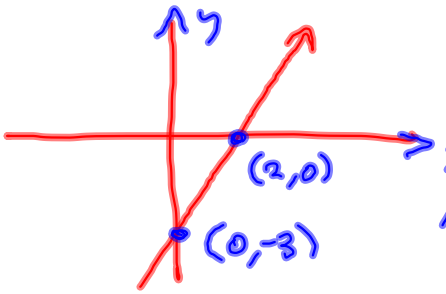
x	y
0	-3
2	0

$3(0)-2y=6$
$-2y=6$
$y=-3$

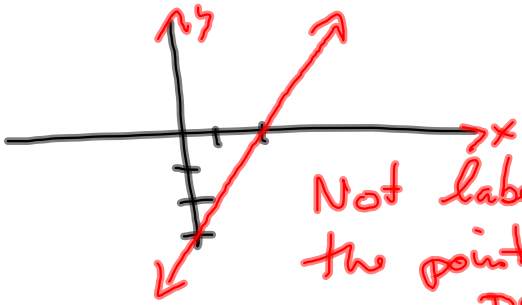
$3x-2(0)=6$
$3x=6$
$x=\frac{6}{3}=2$

$(0,-3)$, $(2,0)$





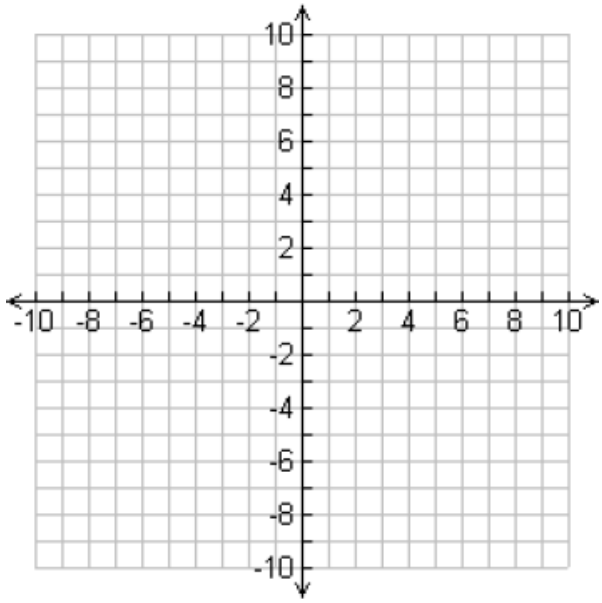
A little nicer, but both graphs are OK



23.7

Not labeling the points as ordered pairs.

Sep 10-9:26 AM



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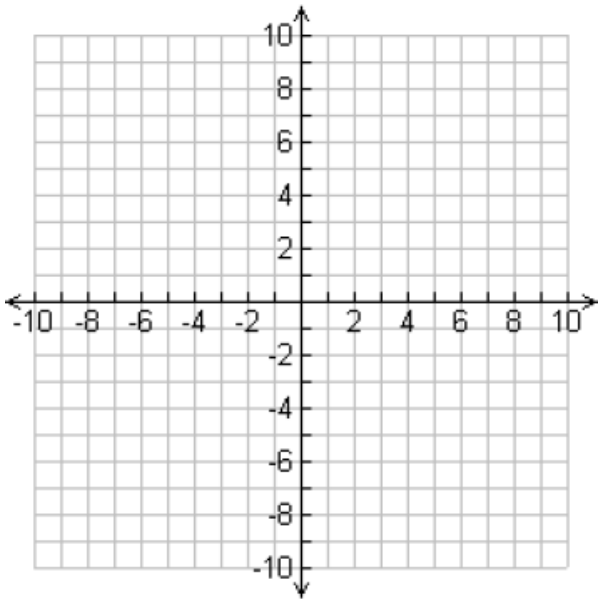


Sep 10-7:20 AM

Determine if an ordered pair is a solution

$x+y=7$ (1,6) ; (-3,11)

Yes No

(1,6): $1+6=7$? Yes

(-3,11): $-3+11=7$? No

(x, y) is soln if we replace the respective variables and get a TRUE STATEMENT.

Graph by plotting points.

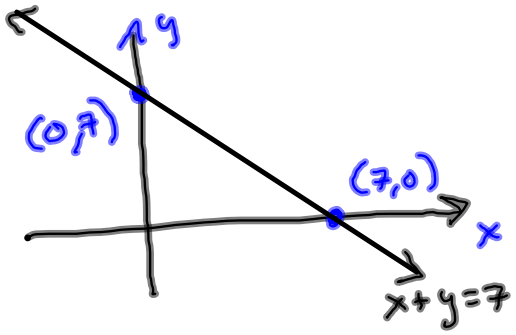
$x+y=7$

x	y
0	
	0

Finding x- & y-intercepts is always good.

x	y
0	7
7	0

All you need for a line is 2 points.



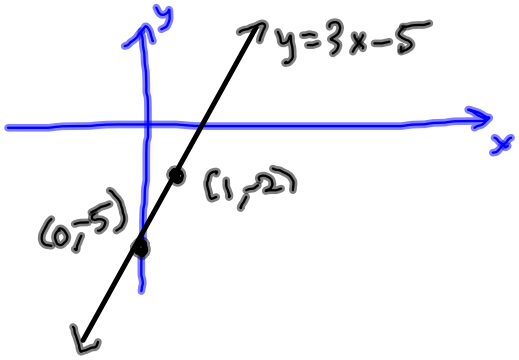
preferably the *x*- and *y*-intercepts.

Notice how "sparse" this graph is. For speed and efficiency, focus on the important stuff, like the intercepts.

Another (Linear) Equation.

$y = 3x - 5$

x	y
0	
1	



Your textbook wants you to plug in points at random. This won't be good enough for most graphs on homework and tests. What matters? INTERCEPTS.

In the case where there is only one intercept, you will have to find another point that isn't an intercept.

In Chapter 3, our focus is on LINES. We will devote ourselves to other concepts in later chapters, even though some other things are sprinkled into Chapter 3:

Lines $3x-2y=6$ $y=5x+2$

- Quadratics: Anything with an x^2 in it, we IGNORE, for now.
- Absolute Value: Anything with a $|x|$ in it (or a $|5x-3|$), we IGNORE, for now.

Plotting anything but lines by just plugging in points is a waste of time. We have better ways of attacking these other things. It's enough, for now, to know that 3.1 #s 21 - 26 are NOT LINEAR.

#38 Not linear $y=3x^2$

So, when doing practice problems that I'm NOT collecting, be sure to omit (leave out) the following:

3.1 #s 33, 34, 37 - 40, 45, 46. Inappropriate, imo.

#46 $y=|x-1|$ Not linear.

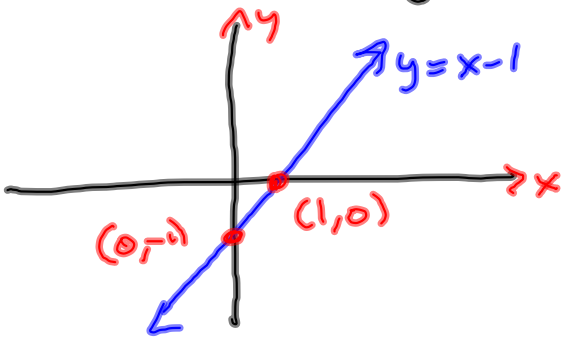
Anything I ask you to graph on Chapter 3 Test will either be a line or have a line as its boundary.

$$|x| = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{if } x < 0 \end{cases}$$

$|3| = 3$

$|-3| = 3 = -(-3)$

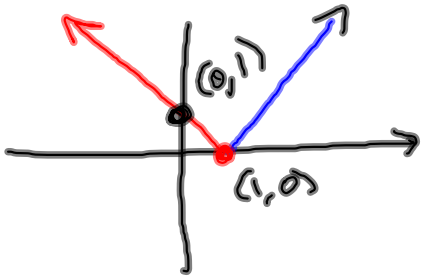
$$|x-1| = \begin{cases} x-1 & \text{if } x-1 \geq 0 \\ -(x-1) & \text{if } x-1 < 0 \end{cases}$$



Graph of $y=x-1$

x	y
0	-1
1	0

Graph of $y=|x-1|$



Not a line.

There is one case where just graphing the intercepts isn't enough.

$y = 5x$

x	y
0	0
1	5

$x - 2y = 0$

x	y
0	0
1	$\frac{1}{2}$

$1 - 2y = 0$

$-2y = -1$

$y = \frac{1}{2}$

So you need to plug in more than just the intercepts for graphs that pass thru the origin.

S 3.1 #5 12, 20, 28, 38, 46