

§2.4 #70

6.85, 7.04, 6.92

Use an inequality to show what the 4th time must be so that the average time is under 7.00 min.

Let x = the time for the last run (in minutes),

Want average time under 7

$$\frac{6.85 + 7.04 + 6.92 + x}{4} < 7$$

$$\frac{20.81 + x}{4} < 7$$

$$\text{LCD} = 4$$

$$\frac{20.81 + x}{4} < \frac{7}{1} \cdot \frac{4}{4}$$

$$\frac{20.81 + x}{4} < \frac{28}{4}$$

We can ditch the denominator!

$$20.81 + x < 28$$

Same effect as clearing fractions.

$$\begin{array}{r} 20.81 + x < 28 \\ -20.81 \quad \quad -20.81 \\ \hline x < 7.19 \end{array}$$

Solution Set: $\{x \mid x < 7.19\}$

Scratch & check:

$6.85 + 7.04 + 6.92$	
	20.81
$6.85 + 7.04 + 6.92 + 7$	
$.19$	28
Ans/4	7

$|3x+2| = |5x+1|$ is fair game. **BONUS**

$|3x+2| < |5x+1|$ requires more skills
than we now have
MEGA BONUS
if on there.

Then with Chapter 2, except for questions.

Homework 1 due Wednesday.

Quiz 1 on the following wed. (Feb 8th)

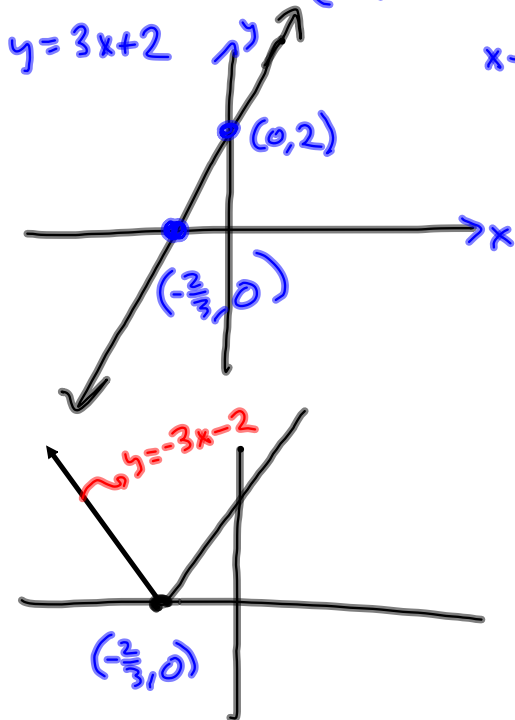
No Class on Friday.

Typically: Homework on Wed.

Quiz over homework on Mon.

$$|3x+2| = |5x+2|$$

$$|3x+2| = \begin{cases} 3x+2 & \text{if } 3x+2 \geq 0 \\ -(3x+2) & \text{if } 3x+2 < 0 \end{cases}$$



x-intercept: $y = 0$

$$\begin{aligned} 0 &= 3x+2 = 0 \\ -2 &= -2 \\ \hline 3x &= -2 \\ x &= -\frac{2}{3} \\ &\rightarrow (-\frac{2}{3}, 0) \end{aligned}$$

$$|3x+2| = |5x+1|$$

$$\begin{aligned} 3x+2 &= 5x+1 & \text{OR} & \quad 3x+2 = -(5x+1) \\ -2 &= -1 & & \quad 3x+2 = -5x-1 \\ \hline 3x &= 5x-1 & & \quad +5x-2 = +5x-2 \\ 5x &= -5x & & \quad \hline 2x &= -1 & & \quad 8x = -3 \\ \hline x &= -\frac{1}{2} & & \quad x = -\frac{3}{8} \end{aligned}$$

From yesterday:

See? Work disagrees with picture!

$|A| = |B|$ is bonus

$|5x+1|$ $|3x+2|$

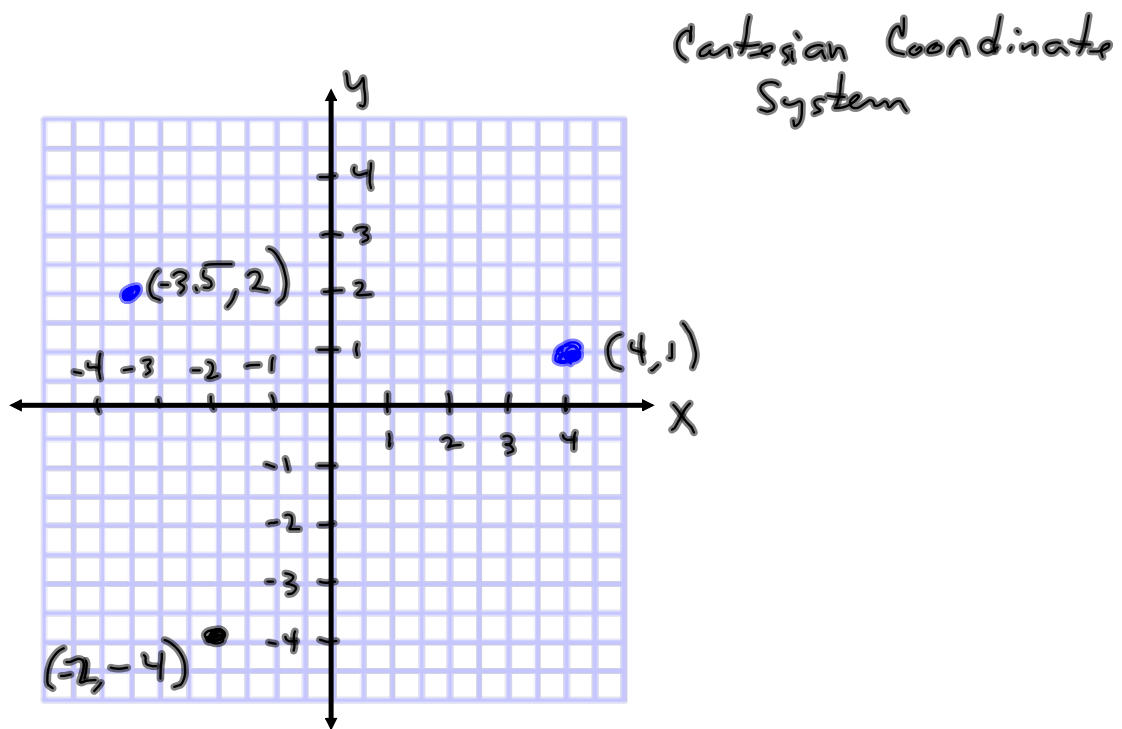
$\frac{1}{2}$

#12 on pg 106
Top left pg 106

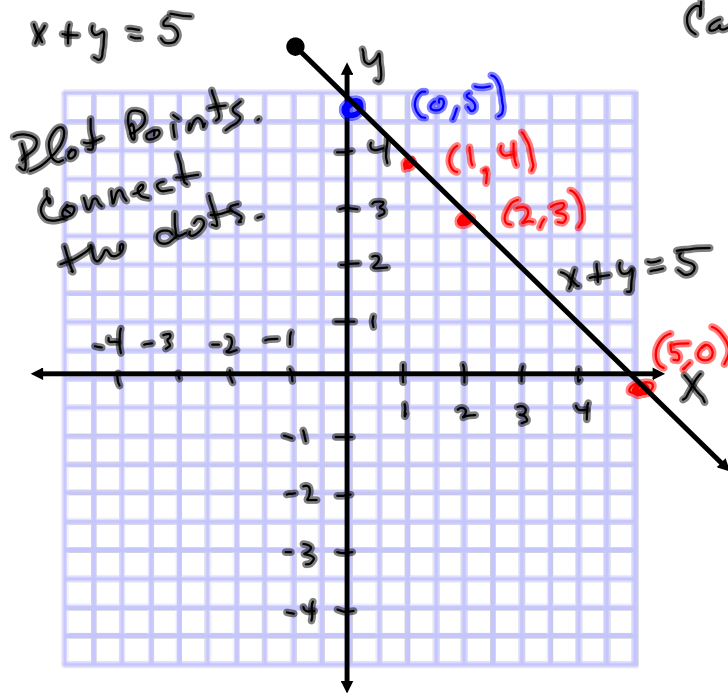
Teacher's full of it on $|A| < |B|$

Teacher missed this part of it.

$x = -\frac{3}{8}$ we just found, today!



Graph of an equation



Cartesian Coordinate System

Descartes

x	y
-2	7
-1	6
0	5
1	4
2	3
5	0

$-2 + y = 5$
 $y = 7$
 $-1 + y = 5$
 $y = 6$

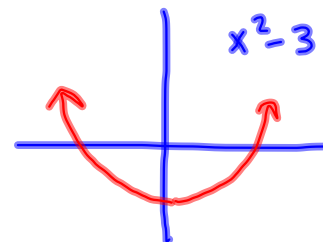
$x + 0 = 5$
 $x = 5$

Most important things to me:

- ① x- & y- intercepts
 $y = 0$ $x = 0$
- ② Shape.

Text book homework exercises:

Plotting $y = |x + 2|$ OR $y = x^2 - 3$
 by plugging in values is Most unsatisfying.



Plotting Lines by Intercepts only

Intercept Method

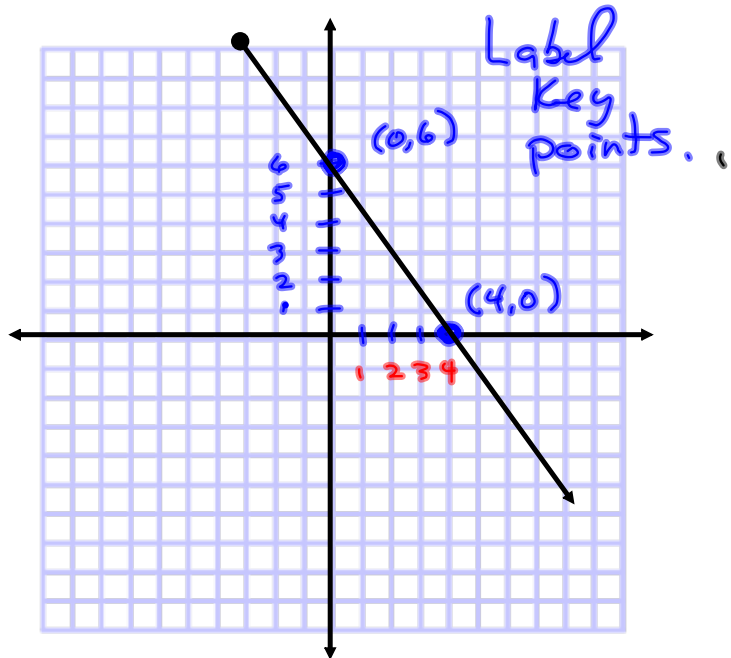
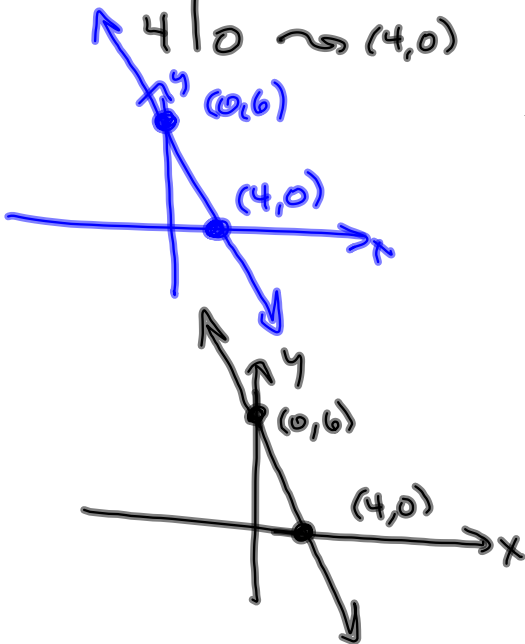
$$3x + 2y = 12$$

$Ax + By = C$ is "General, or Standard" form.

$$3x + 2y = 12$$

x	y
0	6
4	0

$\rightarrow (0,6)$
 $\rightarrow (4,0)$



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So might you.

Homework for NEXT wednesday covers

2.4-2.7, 3.1, 3.2

It's up.

Relation - a correspondence between x & y :

$$y = 3x + 2$$

A few ordered pairs in the relation:

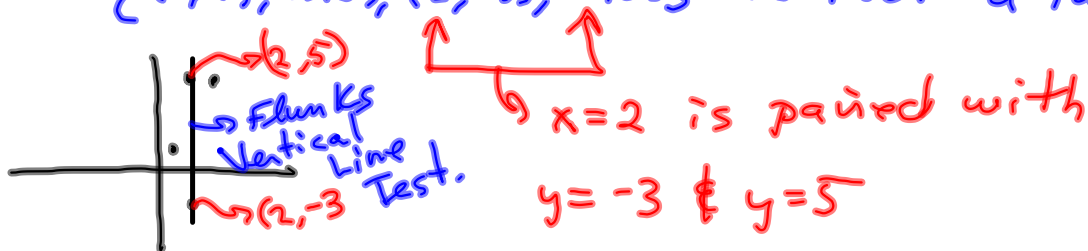
$(0, 2), (1, 5), (2, 8), (3, 11)$

Another Relation:

$\{(1, 2), (3, 5), (2, -3), (2, 5)\}$

Function: A relation where each x corresponds to one y .

$\{(1, 2), (3, 5), (2, -3), (2, 5)\}$ is NOT a function.



$\{(1, 2), (3, 5), (2, 5)\}$ is a function.

Today, covered pieces of 3.1, 3.2

(2.6, 2.7)

$$\frac{2}{15} + \frac{7}{6}$$

$$15 = 3 \cdot 5$$

$$6 = 2 \cdot 3$$

$$\text{LCD} = 2 \cdot 3 \cdot 5$$

$$= \frac{2}{3 \cdot 5} \cdot \frac{2}{2} + \frac{7}{2 \cdot 3} \cdot \frac{5}{5}$$

$$= \frac{4 + 35}{\text{LCD}} = \frac{39}{2 \cdot 3 \cdot 5} = \frac{39}{30}$$

$$\frac{1}{(x+2)(x-1)} + \frac{3}{(x+2)(x+3)}$$

$$\text{LCD} = (x-1)(x+2)(x+3)$$

$$\frac{1}{(x+2)(x-1)} \cdot \frac{(x+3)}{(x+3)} + \frac{3}{(x+2)(x+3)} \cdot \frac{(x-1)}{(x-1)}$$

$$= \frac{x+3 + 3x-3}{\text{LCD}} = \boxed{\frac{4x}{\text{LCD}}}$$