

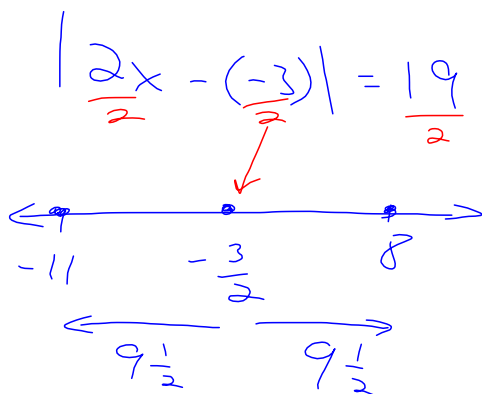
p.583
8.3

ex 6 $|x| = 14$

$\{-14, 14\}$



ex 12 $|2x + 3| = 19$



$$\begin{array}{r} 2x + 3 = 19 \\ -3 \quad -3 \end{array}$$

$$\begin{array}{r} 2x = 16 \\ \frac{2x}{2} = \frac{16}{2} \\ x = 8 \end{array}$$

$$\begin{array}{r} 2x + 3 = -19 \\ -3 \quad -3 \end{array}$$

$$\begin{array}{r} 2x = -22 \\ \frac{2x}{2} = \frac{-22}{2} \\ x = -11 \end{array}$$

$\{-11, 8\}$

Feb 17-6:31 PM

ex 16 $|2x - 9| = 18$

$$\begin{array}{r} 2x - 9 = 18 \\ +9 \quad +9 \end{array} \quad \text{or} \quad \begin{array}{r} 2x - 9 = -18 \\ +9 \quad +9 \end{array}$$

$$2x = 27$$

$$x = \left(\frac{27}{2}\right)$$

$$2x = -9$$

$$x = \left(-\frac{9}{2}\right)$$

$\left\{-\frac{9}{2}, \frac{27}{2}\right\}$

Feb 17-6:47 PM

$$\underline{\text{ex 26}} \quad \left| 2 - \frac{5}{2}x \right| = 14$$

$$2 - \frac{5}{2}x = 14$$

$$\begin{array}{ccc} -2 & & -2 \end{array}$$

$$-\frac{2}{5} \left(-\frac{5}{2} \right) x = \frac{12}{1} \left(-\frac{2}{5} \right)$$

$$x = \frac{-24}{5}$$

$$2 - \frac{5}{2}x = -14$$

$$\begin{array}{ccc} -2 & & -2 \end{array}$$

$$-\frac{2}{5} \left(-\frac{5}{2} \right) x = -16 \left(-\frac{2}{5} \right)$$

$$x = \frac{32}{5} \left\{ \frac{-24}{5}, \frac{32}{5} \right\}$$

Feb 17-6:50 PM

$$\underline{\text{ex 28}} \quad \left| 0.04x - 3 \right| = 5.96$$

$$.04x - 3 = 5.96 \quad \text{or} \quad .04x - 3 = -5.96$$

$$\begin{array}{ccc} +3 & +3 & +3 & +3 \end{array}$$

$$.04x = 8.96$$

$$x = 224$$

$$.04x = -2.96$$

$$x = -74$$

Feb 17-6:54 PM

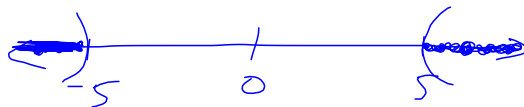
ex 30

$$|x| > 5$$

$$|x - 0| > 5$$

$$x < -5$$

$$x > 5$$



$$x > 5$$

$$x < -5$$

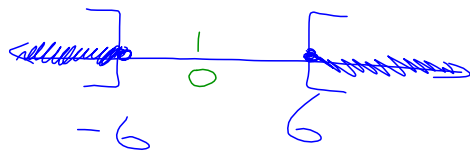
$$(-\infty, -5) \cup (5, \infty)$$

Feb 17-6:58 PM

ex 32

$$|x| \geq 6$$

$$x \geq 6 \text{ or } x \leq -6$$



$$(-\infty, -6] \cup [6, \infty)$$

$$|x - 0| \geq 6$$

#s \uparrow 0 is at least 6
dist from

$$|x| > \#$$

$$|x + \#| \geq \# \text{ or}$$

$|x| <$ and \leq less "than"

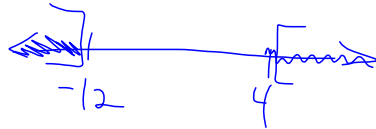
Feb 17-7:05 PM

ex 34 $|x+4| \geq 8$
 $x - (-4)$

$x + 4 \geq 8$ or $x + 4 \leq -8$

$x \geq 4$

$x \leq -12$



$(-\infty, -12] \cup [4, \infty)$

Feb 17-7:14 PM

ex 40 $|-2x - 4| \geq 5$

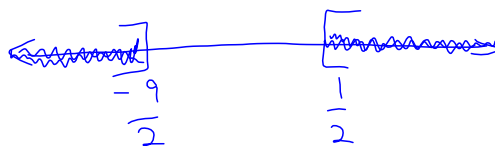
$-2x - 4 \geq 5$ or $-2x - 4 \leq -5$
 $+4$ $+4$ $+4$ $+4$

$\frac{-2x}{-2} \geq \frac{9}{-2}$

$\frac{-2x}{-2} \leq \frac{-1}{-2}$

$x \leq -\frac{9}{2}$

$x \geq \frac{1}{2}$



Feb 17-7:18 PM

ex44 $|x| \leq 5$ $|x - 0| \leq 5$

$x \leq 5$ and $x \geq -5$

~~$x \leq 5$~~ \rightarrow 5

~~$x \geq -5$~~ \leftarrow -5

$-5 \leq x \leq 5$

$[-5, 5]$

$-5 \leq x \leq 5$ and $x \geq -5$

$-5 \leq x$

Feb 17-7:23 PM

ex47 $|r + 5| < 20$

$r + 5 < 20$ and $r + 5 > -20$

-5 -5 -5 -5

$r < 15$ and $r > -25$

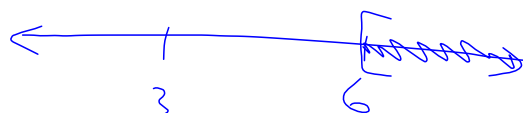
\leftarrow ~~$r < 15$~~ \rightarrow 15 $(-25, 15)$

-25 15

Feb 17-7:29 PM

22 8.2

$$x \geq 3 \quad \text{and} \quad x \geq 6$$



$$[6, \infty)$$

Feb 17-7:33 PM

ex 47 revisited

$$|r+5| < 20$$

$$r+5 < 20 \quad \text{and} \quad r+5 > -20$$

$$-20 < r+5$$

$$\begin{array}{c} -20 < r+5 < 20 \\ -5 \qquad -5 \end{array}$$

$$\begin{array}{c} -25 < r < 15 \end{array}$$

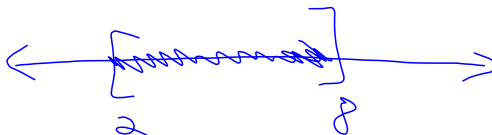
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ex 52 $|5 - x| \leq 3$

$5 - x \leq 3$ and $5 - x \geq -3$ $-3 \leq 5 - x \leq 3$
 -5 -5 -5 -5

$-x \leq -2$ $-x \geq -8$
 $x \geq 2$ $x \leq 8$

$[2, 8]$



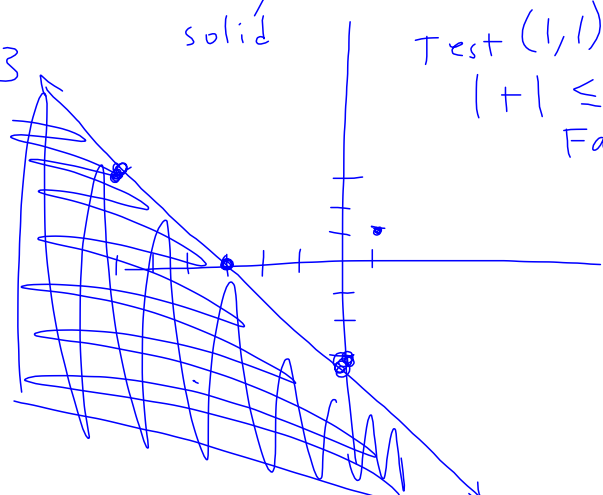
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8.4 p. 593 ex 14 $x + y \leq -3$

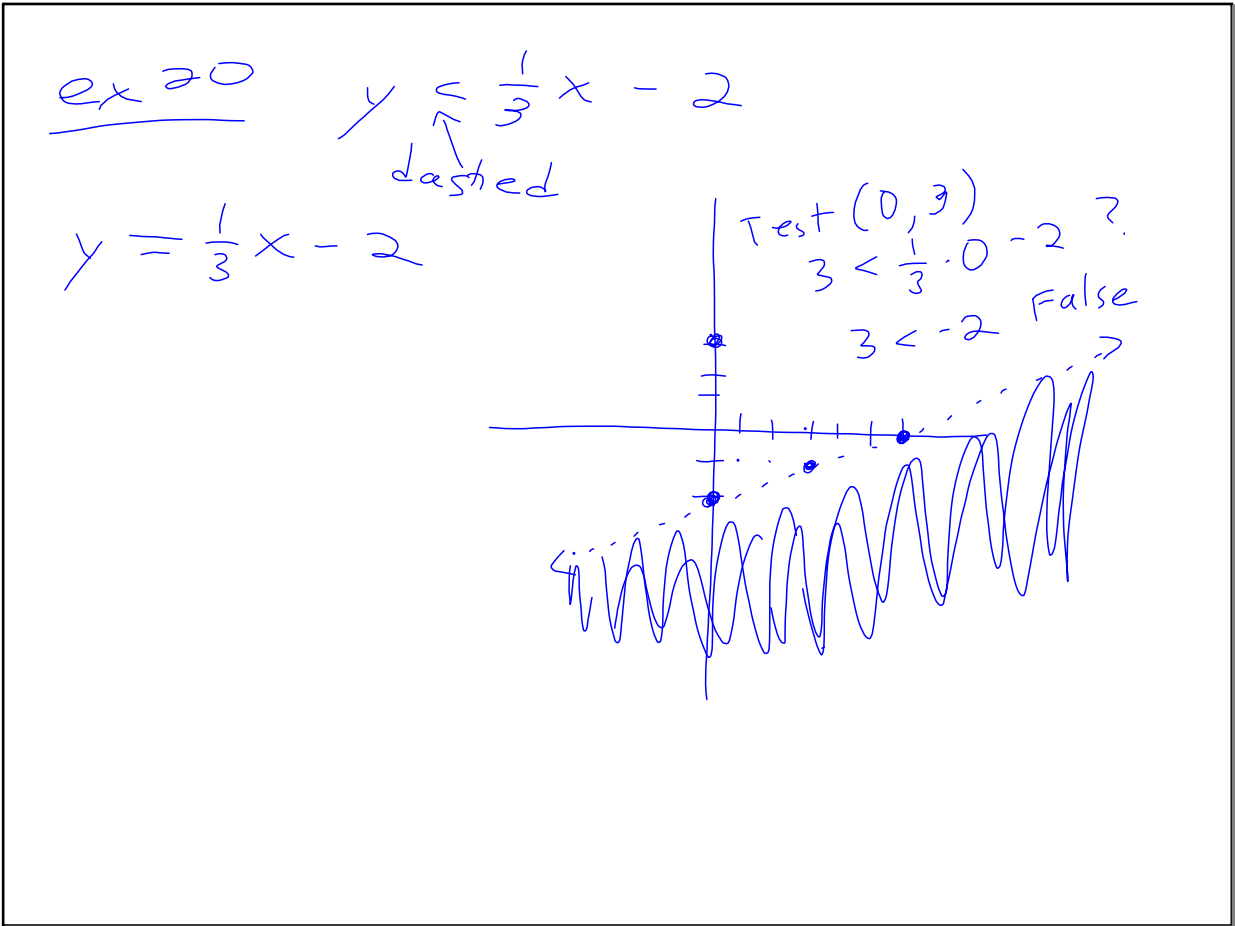
\leq or \geq solid $>$ or $<$ dashed
 solid

Test (1,1)
 $1 + 1 \leq -3$?
 False

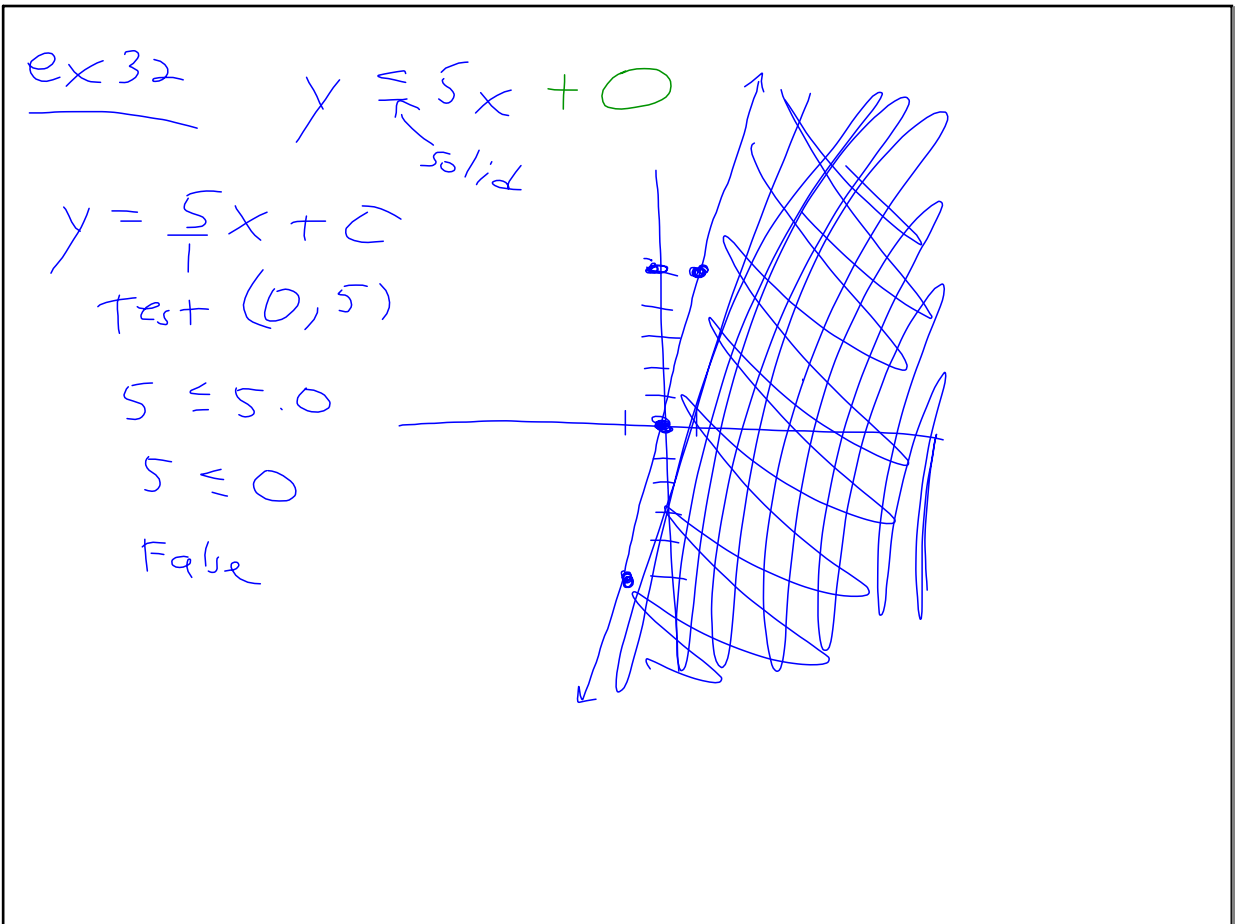
x	y
0	-3
-3	0
-6	3



Feb 17-7:53 PM



Feb 17-8:04 PM



Feb 17-8:08 PM

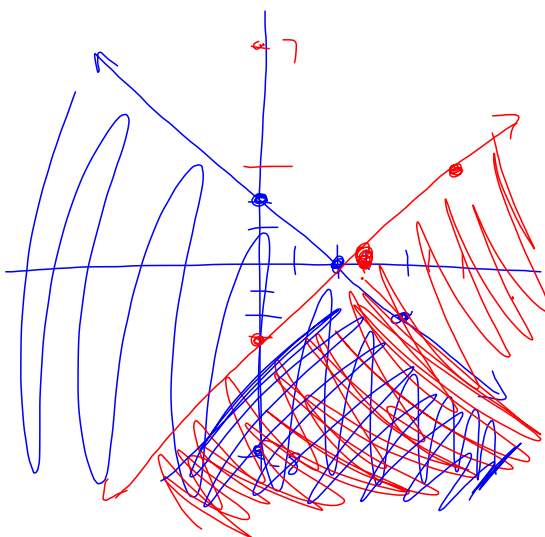
ex 46 $x + y \leq 2$
 $x - y \geq 3$

x	y
0	2
2	0
4	-2

x	y
0	-3
3	0
6	3

Test (0, -8)
 $0 + (-8) \leq 2$
 True

Test (0, 7)
 $0 - 7 \geq 3$
 False



Feb 17-8:11 PM