

pg 241 - 242:

26) {2}      54) {-1, 3}

31) {-4}      \*64) {0, 4}       $x^2 - 4x = 0$

34) {-63}      67) {5}

\*50) {3}

$x^2 - 3x = 0$

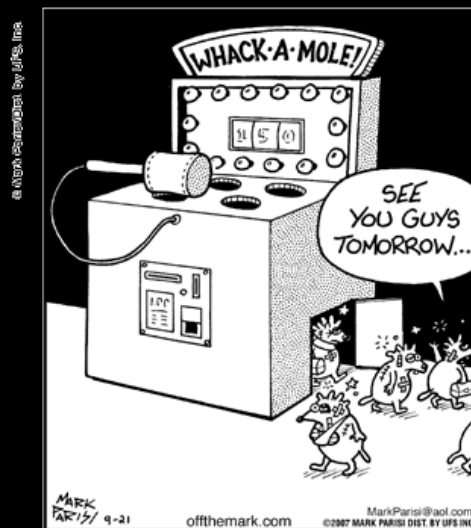
$x(x-3) = 0$

$$\begin{array}{c|c} x=0 & x-3=0 \end{array}$$

Oct 6-10:32 AM

Linear Inequalities  
&  
Absolute Value Inequalities

by Mark Parisi



Sep 30-2:51 PM

Conjunction  $\rightarrow$  and, both need to be true

Disjunction  $\rightarrow$  or, only one needs to be true

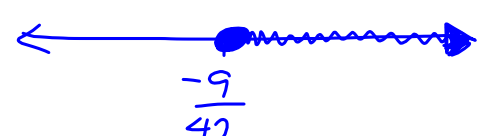
Sep 30-2:55 PM

Solve and graph the solution set:

1.  $\frac{12}{1} \left[ -\frac{5}{6}x \leq \frac{3}{4} + \frac{8}{3}x \right]$

$$\begin{array}{r} -10x \leq 9 + 32x \\ -32x \quad -32x \\ \hline -42x \leq 9 \\ \hline -42 \quad -42 \\ \hline x \geq -\frac{9}{42} \end{array}$$

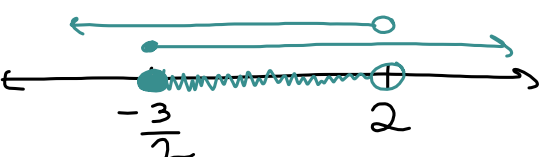
Switch the inequality  
 $x \geq -\frac{9}{42}$



or  $\left[ -\frac{9}{42}, \infty \right)$   
 $\{x \mid x \geq -\frac{9}{42}\}$

2.  $-2 \leq 2x+1 < 5$

$-2 \leq 2x+1$ $-1 \quad -1$ $-\frac{3}{2} \leq 2x$ $\frac{2}{2} \quad \frac{2}{2}$ $-\frac{3}{2} \leq x$ $x \geq -\frac{3}{2}$	$2x+1 < 5$ $2x < 4$ $x < 2$
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or  $\left[ -\frac{3}{2}, 2 \right)$   
 $\{x \mid -\frac{3}{2} \leq x < 2\}$

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3.  $2x + 3 < 11$  or  $x + 4 \geq 9$

$2x < 8$

$x < 4$

$x \geq 5$



$(-\infty, 4) \cup [5, \infty)$

$\{x \mid x < 4 \text{ or } x \geq 5\}$

Sep 30-2:55 PM

Absolute Value Inequalities:

$|x| = a \rightarrow$ 
 $x = \pm a$

$|x| < a \rightarrow$ 
 $|x| < 3$ 
 $\text{less than}$

$|x| > a \rightarrow$ 
 $\text{greater than}$

Sep 30-2:56 PM

Solve and graph:

(graphs are required even when not specifically asked for!)

1.  $|x + 8| \geq 7$

negative	positive
$-(x+8) \geq 7$	$x+8 \geq 7$
$-x-8 \geq 7$	$x \geq -1$
$-x \geq 15$	
$\frac{-x}{-1} \geq \frac{15}{-1}$	
$x \leq -15$	

$$(-\infty, -15] \cup [-1, \infty)$$

$$\{x \mid x \leq -15 \text{ or } x \geq -1\}$$

2.  $|6 - 4x| \leq 4$

-	+
$-(6-4x) \leq 4$	$6-4x \leq 4$
$-6+4x \leq 4$	$-6 \quad -6$
$4x \leq 10$	$-4x \leq -2$
$\frac{4x}{4} \leq \frac{10}{4}$	$\frac{-4x}{-4} \leq \frac{-2}{-4}$
$x \leq \frac{5}{2}$	$x \geq \frac{1}{2}$

$$[\frac{1}{2}, \frac{5}{2}]$$

$$\{x \mid \frac{1}{2} \leq x \leq \frac{5}{2}\}$$

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3.  $\left| \frac{2x+1}{3} \right| > 5$

-	+
$-\left(\frac{2x+1}{3}\right) > 5$	$\frac{2x+1}{3} > 5$
$\frac{-2x-1}{3} > 5$	

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From Text:

Pg 249 – 250: 58, 65, 66

58. Gina plans to invest \$12,000, part at 4% simple interest and the rest at 6% simple interest. What is the most she can invest at 4% and still be guaranteed at least \$650 in interest per year?

Let  $x$  = amount @ 4%

$12,000 - x$  : amount @ 6%

$$.04x + .06(12000 - x) \geq 650$$

Sep 14-9:20 AM

65. Explain why  $|x| < p$  has no solution for  $p \leq 0$ .

$|x| < 0$   $|x| < -1$   $p$  is 0 or negative

absolute value measures your distance from 0 which must be positive

66. Explain why all real numbers are solutions of  $|x| > p$ , for  $p < 0$ .

$|x| > -1$

abs value will always be positive  $p$  is negative

Sep 14-9:22 AM

HW Pp. 248 - 250

# 4, 12, 20, 22, 28, 44, 48, 54, 62

TEST Wednesday



Oct 17-12:08 PM