

p. 352: 21, 24, 25, 28, 29, 32, 33,  
36-40 (a)

$$\textcircled{21} \quad x \leq -2 \text{ or } x > 5$$

$$\textcircled{24} \quad x \geq -2 \text{ or } x > 0$$

$$\textcircled{25} \quad x < -6 \text{ or } x \geq -2$$

$$\textcircled{28} \quad x \geq -5 \text{ or } x < -16$$

$$\textcircled{29} \quad x < 10 \text{ or } x > 12; \text{ solution}$$

$$\textcircled{32} \quad x < -7 \text{ or } x \geq 2; \text{ solution}$$

$$\textcircled{33} \quad x < -2 \text{ or } x \geq 4$$

$$\textcircled{36} \quad x > 7 \text{ or } x < 8$$

$$\textcircled{37} \quad x < -2 \text{ or } x \geq 1$$

$$\textcircled{38} \quad x > 3 \text{ or } x \leq 1$$

$$\textcircled{39} \quad x < -8 \text{ or } x \geq -2$$

$$\textcircled{40} \quad x \geq 3 \text{ or } x < -3$$

b.b. Solving

Dec. 18, 2006

## Absolute-Value Equations

Review: **Distance from Zero!**

$$|5| = 5 \quad |-10| = 10$$

$$|x| = 7 \quad x = 7 \text{ or } x = -7$$

$$|ax+b| = c$$

where  $a, b, +c$  are  
#s +  $x$  is the  
Variable

$$ax+b=c \quad \text{or} \quad ax+b=-c$$

\*  $|y| = -22$  No Solutions

$$|x-2| = 5$$

$$\begin{array}{ccc} x-2=5 & \text{or} & x-2=-5 \\ \begin{array}{r} +2 \quad +2 \\ \hline x=7 \end{array} & \downarrow \text{or} & \begin{array}{r} +2 \quad +2 \\ \hline x=-3 \end{array} \end{array}$$

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Check:

$$\begin{array}{l} |7-2| \stackrel{?}{=} 5 \\ |5| \stackrel{?}{=} 5 \\ 5 = 5 \checkmark \end{array}$$

$$\begin{array}{l} |-3-2| \stackrel{?}{=} 5 \\ |-5| \stackrel{?}{=} 5 \\ 5 = 5 \checkmark \end{array}$$

$$|2x - 7| - 5 = 4$$

$$\frac{|2x - 7| - 5 + 5}{+5} = \frac{4 + 5}{+5}$$
$$|2x - 7| = 9$$

$$2x - 7 = 9$$

$$\frac{2x - 7 + 7}{+7} = \frac{9 + 7}{+7}$$
$$\frac{2x}{2} = \frac{16}{2}$$

$$x = 8$$

or

$$2x - 7 = -9$$

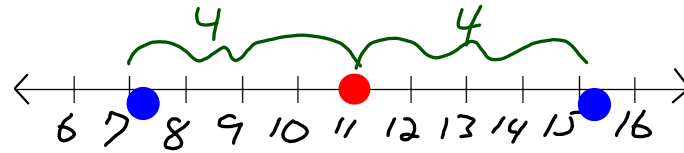
$$\frac{2x - 7 + 7}{+7} = \frac{-9 + 7}{+7}$$
$$\frac{2x}{2} = \frac{-2}{2}$$

$$x = -1$$

or

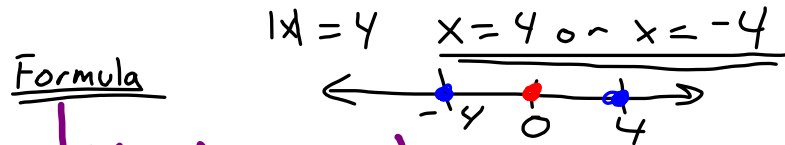
|| is the same as any grouping symbol... so... it acts like it's own variable

Write an absolute-value eqn.  
 that has  $7$  &  $15$  as its  
1st Graph Solutions



2<sup>nd</sup> find the Midpoint (Average)

3<sup>rd</sup> find the distance



$$|x - \text{Midpoint}| = \text{Distance}$$

$$|x - 11| = 4$$

Write an abs-value equ.

w/  $10 + 15$  as the solutions

Find Average to get Midpoint

$$\text{MidPt (Avg)} = \frac{(10+15)}{2} = \frac{25}{2} = 12.5$$

$$\text{Distance} = 2.5$$

$$|x - \text{MidPt}| = \text{Distance}$$

$$\underline{\underline{|x - 12.5| = 2.5}}$$



O.T.L.

① pg 358-359: 10-12(a)

16, 20, 23, 24, 26, 27,  
32, 36, 39, 40, 41,  
42, 43, 47, 48