TH-A1 Algebra 1 Week 17 1/26

1.) $|x| - 3 = 12$

$+3 \quad +3$

$|x| = 15$

$x = 15$ or $x = -15$

2.) $\frac{-4|x|}{-4} = \frac{28}{-4}$

$|x| = -7$

No solution

3.) $|x - 8| = 15$

$x - 8 = 15$ or $x - 8 = -15$

$+8 \quad +8 \qquad +8 \quad +8$

$x = 23$ or $x = -7$

$|a| = 15$ (15 and -15)

4.) $|x + 3| + 7 = 20$

$-7 \quad -7$

$|x + 3| = 13$

$x + 3 = 13$ or $x + 3 = -13$

$-3 \quad -3 \qquad -3 \quad -3$

$x = 10$ or $x = -16$

$\left|\frac{b}{7}\right| < 2$

$7\left(\frac{b}{7}\right) < (2)7$

$b < 14$

flip, negative

$7\left(\frac{b}{7}\right) > (-2)7$

$b > -14$

2 ⟷ -2 "opposites"

$|x-6| < 4$

$x-6 < 4$
$+6 \quad +6$
$x < 10$

$x-6 > -4$
$+6 \quad +6$
$\boxed{x > 2}$


$|x-2| > -3$ always
all solutions!

$|x-2| < -3$ Never!
no solution

1.) $\frac{-4|x|}{-4} > \frac{3}{-4}$

flip when you mult or divide by negative

$|x| < \frac{-3}{4}$

no solution

2.) $\frac{-4|x|}{-4} < \frac{-8}{-4}$

$|x| > 2$

$x > 2$ or $x < -2$


3.) $|4+9x| \leq 5$

$4+9x \leq 5$

$-4 \quad -4$

$\frac{9x}{9} \leq \frac{1}{9}$

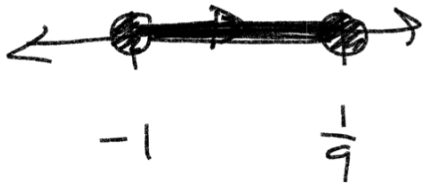
$x \leq \frac{1}{9}$

$4+9x \geq -5$

$-4 \quad -4$

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

$x \geq -1$



$$2 - 5\left|10x+2\right| \geq -108$$

$-2 \qquad\qquad -2$

$$-5\left|10x+2\right| \geq -110$$

(*) $\dfrac{}{-5} \qquad\qquad \dfrac{}{-5}$

$10x+2 = 22$

$$\left|10x+2\right| \leq 22$$

$$10x+2 \leq 22 \qquad\qquad 10x+2 \geq -22$$
$$-2 \quad -2 \qquad\qquad -2 \quad -2$$
$$\frac{10x}{10} \leq \frac{20}{10} \qquad\qquad \frac{10x}{10} \geq \frac{-24}{10}$$
$$x \leq 2 \qquad\qquad x \geq -2.4$$

$x \geq \frac{-12}{5}$