W-A1 Algebra 1 Week 16 1/10

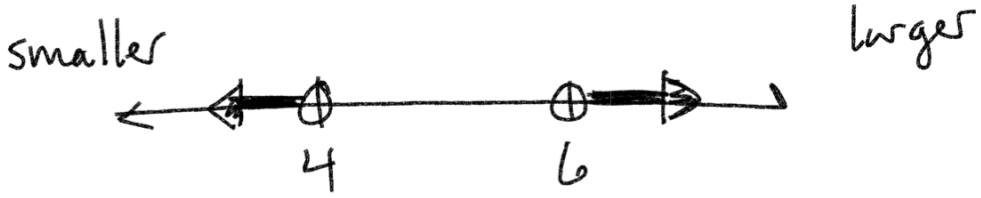
1.) $\frac{-6r}{-6} > \frac{-24}{-6}$ → $r < 4$

or → divergent

$r - 3 > 3$

$+3 \quad +3$

$r > 6$



2.) $x - 10 < -9$

$+10 \quad +10$

$x < 1$

and → converge

$x + 3 \geq -1$

$-3 \quad -3$

$x \geq -4$

$-5 < x - 8 \leq -3$

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

$3 < x \leq 5$

$3 < x \quad x \leq 5$

$$-2 \leq \frac{x}{5} + 3 \leq -1$$

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

$$(-5)^5 \leq \left(\frac{x}{5}\right)^5 \leq (-4)5$$

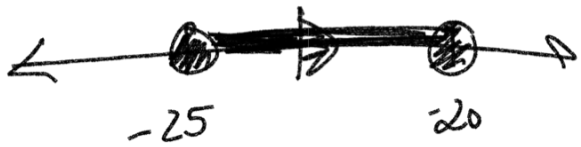
$$-25 \leq x \leq -20$$

Left follow

$x \leq -20$

$-25 \leq x$

Right



opposite

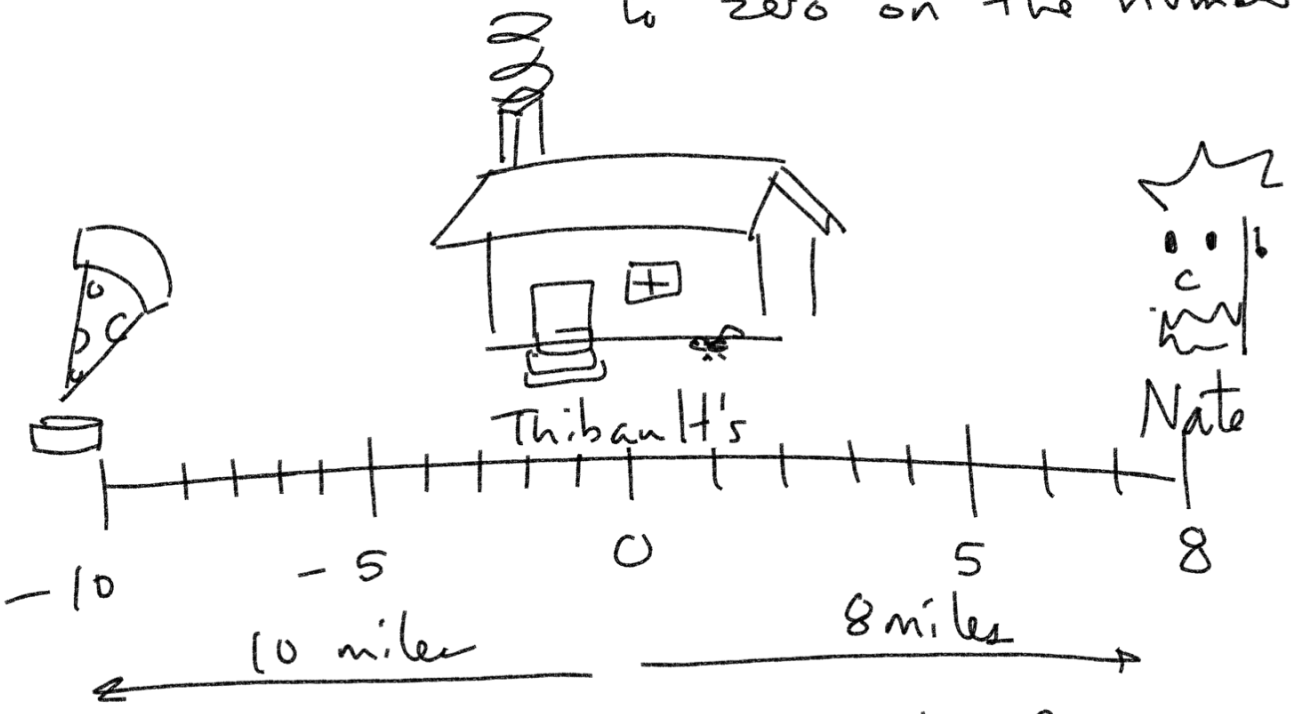
$$-38 \leq -4x + 2 < -26$$

$-2 \qquad -2 \qquad -2$

$$\frac{-40}{-4} \leq \frac{-4x}{-4} < \frac{-28}{-4}$$

$$10 \geq x > 7$$

Absolute Value - Distance from a number to zero on the number line



$|-10| = 10$

$|8| = 8$

$|-4| = 4$

$-|-4| = -4$

$|x| = 3$

3 $\quad$ -3

$x = 3 \quad x = -3$

$|x| = 3$

$x = 3 \quad x = -3$

$|x| + 5 = 9$

$-5 \quad -5$

Before anything!! Isolate absolute value

$|x| = 4$

$x = 4$ $\quad$ $x = -4$

$|x| - 8 = 13$

$+8 \quad +8$

$|x| = 21$

$x = 21$ $\quad$ $x = -21$

$|x| = -2$ No solution!

$|x| + 5 = 2$

$-5 \quad -5$

$-4|x| = -3$

$\frac{-4}{-4} \quad \frac{-3}{-4}$

$|x| = -3$

No solution

$|x| = \frac{3}{4}$

$x = \frac{3}{4}$ $\quad$ $x = -\frac{3}{4}$

1.) Isolate Absolute Value

2.) After isolated, check for negatives.
If ⊖ → no solution

3.) ⊕ ✓ ⊖ ✓ and solve

$|x-2|+6=15$
$-6 \quad -6$

$|x-2|=9$ ✓

⊕ ⊖

$x-2=9$
$+2 \quad +2$
$x=11$

$x-2=-9$
$+2 \quad +2$
$x=-7$

$|x+9|=12$

$x+9=12$
$-9 \quad -9$
$x=3$

$x+9=-12$
$-9 \quad -9$
$x=-21$

1.) Isolate abs value
2.) Check for negative
3.) Split -/+ and solve

2.) $|x-1|=-7$

No solution

1.) Isolate abs value ✓
2.) Check for negative
3.) Split -/+ and solve

$$\frac{|x|}{3} - 7 = -4$$

$+7 \quad +7$

1.) Isolate abs value
2.) Check for negative
3.) Split -/+ and solve

$$3\left(\frac{|x|}{3}\right) = (3)3$$

$$|x| = 9$$

$x = 9$ | $x = -9$

4.) $|x-2| + 8 = 14$

$-8 \quad -8$

1.) Isolate abs value
2.) Check for negative
3.) Split -/+ and solve

$$|x-2| = 6$$

$x - 2 = 6$

$+2 \quad +2$

$x = 8$

$x - 2 = -6$

$+2 \quad +2$

$x = -4$

$$-2|x-5|-2=-6$$

$+2 \qquad +2$

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

$$|x-5|=2$$

$\ominus$ $\oplus$

$x-5=2$ $\qquad$ $x-5=-2$

$+5 \ +5$ $\qquad$ $+5 \ +5$

$x=7$ $\qquad$ $x=3$