

$$1) \quad (-2) - (-3) - \frac{14}{(-10) + 3}$$

$$(-2) - (-3) - \frac{14}{-7}$$

$$(-2) - (-3) - (-2)$$

$$(-2) - (-3) - 2$$

$$-2$$

(-1)

(B)

$$2) (-4) \times 2 \times 5 - (6 - 2)$$

$$(-4) \times 2 \times 5 - 4$$

$$-8 \times 5 - 4$$

$$-40 - 4$$

$$\textcircled{-44}$$

$$3) \frac{-1 - (-9 - 6^2)}{4}$$

$$\frac{-1 - (-9 - 36)}{4}$$

$$\frac{-1 - (-45)}{4}$$

$$\frac{-1 + 45}{4}$$

$$\frac{44}{4} = 11 \quad \textcircled{A}$$

$$4) (-5) - (-3)^2 + \frac{-4}{4}$$

$$(-5) - 9 + \frac{-4}{4}$$

$$(-5) - 9 + (-1)$$

$$-14 + (-1) = \textcircled{-15}$$

5)

$$(3x^3 - 5x^4 + 8x^2) + (x^3 - 2x^4 - 2x^2) \\ - 7x^4 + 4x^3 + 6x^2$$

ⓓ

Combine
Like
Terms

$$6) \quad (-k^3 + k^4 - 4) - (-3 - 4k^4 - 4k^3)$$

$$5k^4 + 3k^3 - 1$$

$$7) \quad 6(p+6) = 84$$

$$\begin{array}{r} 6p + 36 = 84 \\ - 36 \quad - 36 \\ \hline 6p \quad = 48 \\ \underline{6} \quad \quad 6 \end{array}$$

$$p = 8$$

$$8.) 30 + 6x = 3(6 + 2x) - 6x$$

$$30 + 6x = 18 + \cancel{6x} - \cancel{6x}$$

$$30 + 6x = 18$$

$$\begin{array}{r} -30 \qquad -30 \\ \hline 6x = -12 \\ \frac{6x}{6} = \frac{-12}{6} \end{array}$$

$$x = -2$$

(D)

$$9) -6a + 6(4a-1) = 38 + 7a$$

$$-6a + 24a - 6 = 38 + 7a$$

$$18a - 6 = 38 + 7a$$

$$\begin{array}{r} -7a + 6 \quad +6 -7a \\ \hline \end{array}$$

$$\frac{11a}{11} = \frac{44}{11}$$

11

11

$$a = 4$$

$$w) \quad 24 = -4x - 4x$$

$$\frac{24}{-8} = \frac{-8x}{-8}$$

$$-3 = x$$

ABSOLUTE VALUE = 2 CASES!!!

$$11.) |x+5| = -3$$

$$\begin{array}{r} x+5 = -3 \\ -5 \quad -5 \\ \hline x = -8 \end{array}$$

$$\begin{array}{r} x+5 = 3 \\ -5 \quad -5 \\ \hline x = -2 \end{array}$$

check:

$$|-8+5| \stackrel{?}{=} -3$$

$$|-3| \stackrel{?}{=} -3$$

$$3 \neq -3$$

$$|-2+5| = -3$$

$$|3| = -3$$

$$3 \neq -3$$



$$12.) \quad 3. \quad \frac{|m-7|}{3} = 1 \cdot 3$$

$$|m-7| = 3$$

$$\begin{array}{r} m-7 = 3 \\ +7 \quad +7 \end{array}$$

$$m = 10$$

Check:

$$\frac{|10-7|}{3} \stackrel{?}{=} 1$$

↙

$$\frac{|3|}{3} = 1$$

$$\frac{|3|}{3} = 1$$

$$\begin{array}{r} m-7 = -3 \\ +7 \quad +7 \end{array}$$

$$m = 4$$

$$m = 10, 4$$

$$\frac{|4-7|}{3} \stackrel{?}{=} 1$$

↙

$$\frac{|-3|}{3} = 1$$

$$\frac{|-3|}{3} = 1$$

$$13.) \quad |-3r - 2| = 2$$

$$-3r - 2 = 2$$

$$\begin{array}{r} -3r = 4 \\ \hline -3 \quad \hline \end{array}$$

$$r = -\frac{4}{3}$$

CHECK:

$$|-3\left(-\frac{4}{3}\right) - 2| \stackrel{?}{=} 2$$

$$|4 - 2| \stackrel{?}{=} 2$$

$$|2| = 2 \checkmark$$

$$-3r - 2 = -2$$

$$\begin{array}{r} +2 \quad +2 \\ \hline \end{array}$$

$$\begin{array}{r} -3r = 0 \\ \hline -3 \quad \hline \end{array}$$

$$r = 0$$

$$|-3(0) - 2| \stackrel{?}{=} 2$$

$$|-2| = 2$$

$$2 = 2 \checkmark$$

$$14.) \quad |2v+4| \begin{matrix} -10 \\ +10 \end{matrix} = \begin{matrix} -4 \\ +10 \end{matrix}$$

$$|2v+4| = 6$$

$$2v+4 = 6$$

$$2v = 2$$

$$v = 1$$



$$2v+4 = -6$$

$$2v = -10$$

$$v = -5$$

$$v = -5, 1$$

Check: $|2(1)+4| - 10 \stackrel{?}{=} -4$

$$|2+4| - 10 = -4$$

$$|6| - 10 = -4$$

$$6 - 10 = -4 \quad \checkmark$$

Check: $|2(-5)+4| - 10 \stackrel{?}{=} -4$

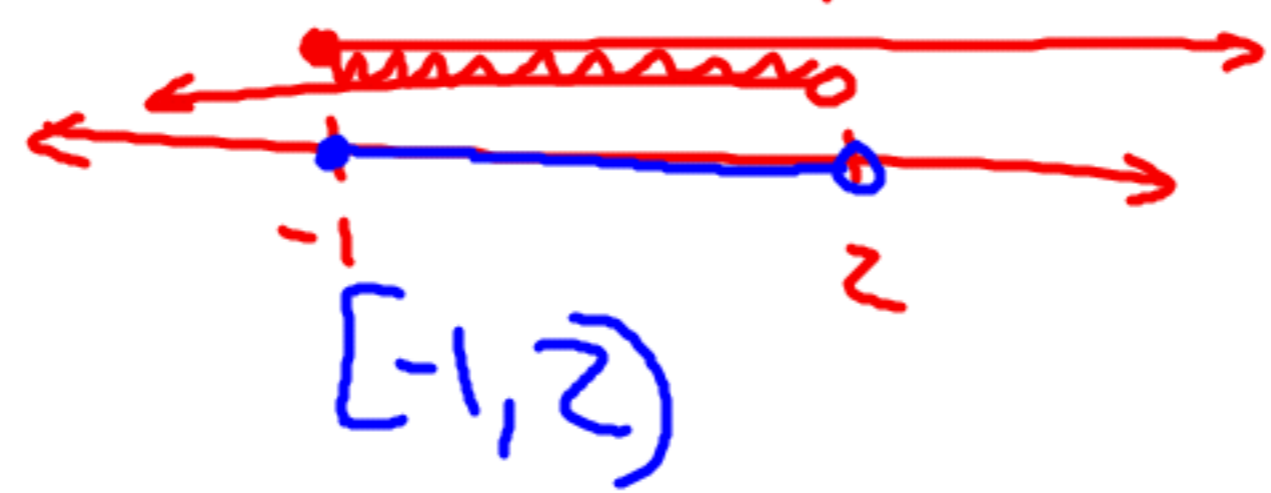
$$|-10+4| - 10 = -4$$

$$|-6| - 10 = -4$$

$$6 - 10 = -4 \quad \checkmark$$

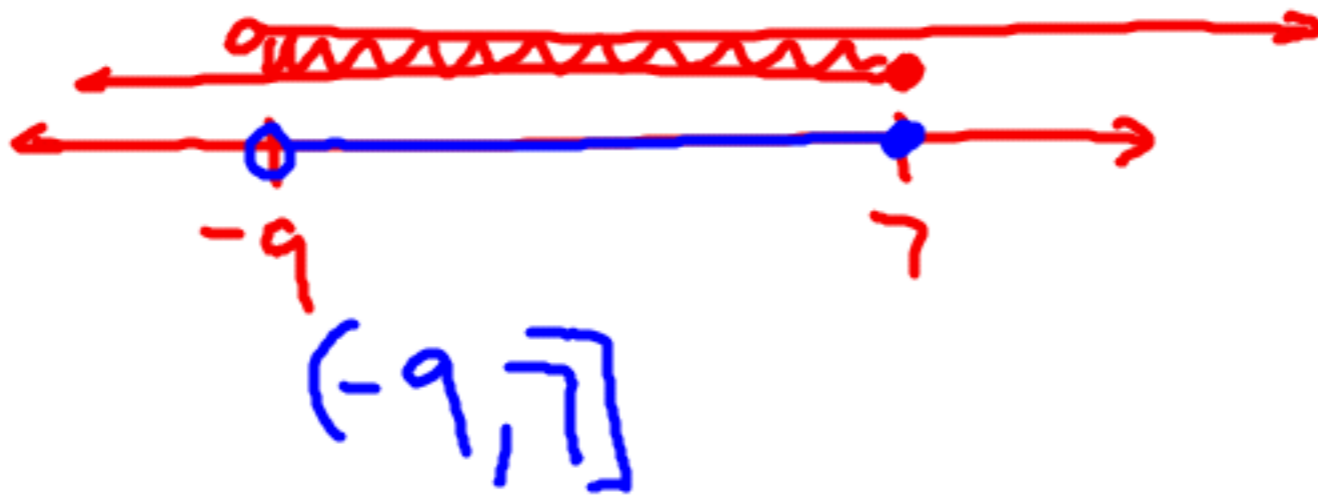
15.) $-\frac{9p}{-9} > \frac{-18}{-9}$ and $\frac{2+p}{-2} \geq \frac{1}{-2}$

$p < 2$ and (overlap) $p \geq -1$



$$16) \quad b + 7 \leq 14 \quad \text{and} \quad b - 8 > -17$$

$$b \leq 7 \quad \text{and} \quad b > -9$$



$$17) \quad \begin{array}{r} 7 - 9v > 25 \\ -7 \qquad -7 \end{array}$$

or

$$\begin{array}{r} 10v + 2 > 82 \\ -2 \qquad -2 \end{array}$$

$$\frac{-9v}{-9} > \frac{18}{-9}$$

$$\frac{10v}{10} > \frac{80}{10}$$

DIVIDE BY
NEGATIVE \curvearrowright $v < -2$

$$v > 8$$

SWITCHES INEQUALITY



OR is anywhere
there is a graph

$$(-\infty, -2) \cup (8, \infty)$$

18.)

$$7x - 5 < 65$$

+5 +5

$$\frac{7x}{7} < \frac{70}{7}$$

$$x < 10$$

and

$$8 - 8x \leq -16$$

-8 -8

$$\frac{-8x}{-8} \leq \frac{-24}{-8}$$

$$x \geq 3$$



[3, 10)

19)

$$8n + 2 \leq 82$$
$$\begin{array}{r} -2 \\ \hline 8n \leq 80 \\ \hline n \leq 10 \end{array}$$

and

$$-9 - 10n < -39$$
$$\begin{array}{r} +9 \\ \hline -10n < -30 \\ \hline n > 3 \end{array}$$

$$\frac{-10n}{-10} < \frac{-30}{-10}$$

$$n > 3$$

$$n \leq 10$$



$$(3, 10]$$

ABSOLUTE VALUE = 2 CASES!!!

$$20) |b-6| \geq 13$$

$>, \geq = \text{or}$
 $<, \leq = \text{and}$

$$b-6 \geq 13 \quad \text{or}$$
$$\begin{array}{l} +6 \quad +6 \\ b \geq 19 \end{array} \quad \text{or}$$

$$-b+6 \geq 13$$
$$\begin{array}{l} -6 \quad -6 \\ -b \geq 7 \\ \frac{-b}{-1} \geq \frac{7}{-1} \\ b \leq -7 \end{array}$$



$$(-\infty, -7] \cup [19, \infty)$$



21)

$$\frac{-5 \left| \frac{x}{3} \right| < -5}{-5}$$

$$\left| \frac{x}{3} \right| > 1$$

3. $\frac{x}{3} > 1.3$ or $(-3) \left(-\frac{x}{3} \right) > 1(-3)$

$$x > 3$$

$$x < -3$$



$$(-\infty, -3) \cup (3, \infty)$$

A

② $|x+2| < 7$
and

$$x+2 < 7$$

-2 -2

$$x < 5$$

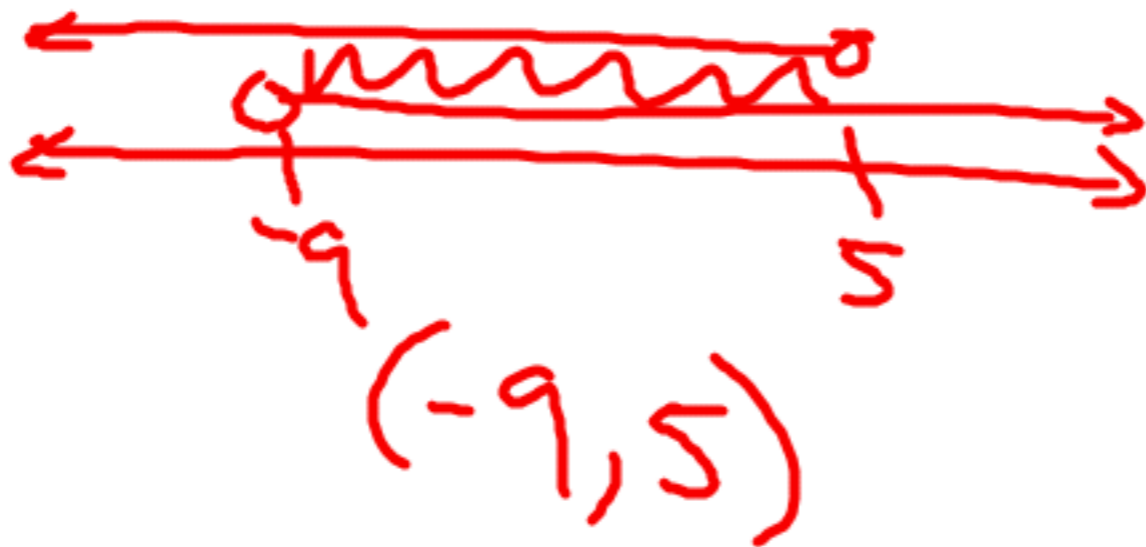
and

$$-x-2 < 7$$

+2 +2

$$\frac{-x < 9}{-1}$$

$$x > -9$$



$$\textcircled{23} \quad \frac{-6 | 7 - 2n | \leq 30}{-6}$$

$$| 7 - 2n | \geq -5 \quad \textcircled{or}$$

$$\begin{array}{r} 7 - 2n \geq -5 \\ -7 \end{array}$$

$$\begin{array}{r} -2n \geq -12 \\ -2 \end{array}$$

$$n \leq 6$$

\textcircled{or}

$$\begin{array}{r} -7 + 2n \geq -5 \\ +7 \end{array}$$

$$\begin{array}{r} 2n \geq 2 \\ 2 \end{array}$$

$$n \geq 1$$



$(-\infty, \infty)$

all real numbers

$$24) \quad | -2n | - 8 \leq \frac{-14}{+8}$$

$$| -2n | \leq -6$$

and

$$\frac{-2n}{2} \leq \frac{-6}{2}$$

$$n \geq 3$$



3

and

$$\frac{2n}{2} \leq \frac{-6}{2}$$

$$n \leq -3$$

and



3

\emptyset

25)

$$|-3v| + 2 > -7$$

$$|-3v| > -9$$

$$\frac{-3v}{-3} > \frac{-9}{-3}$$

or

$$\frac{3v}{3} > \frac{-9}{3}$$

$$v < 3$$

or

$$v > -3$$



$(-\infty, \infty)$

all real numbers!