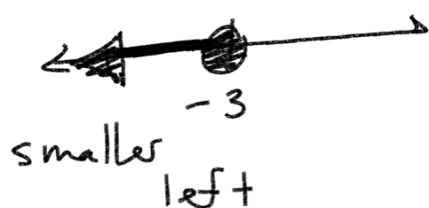


- 1.)  $x < 6$  6 is not a solution  $x$  is bigger
- 2.)  $8 \leq x$  opposite direction
- 3.)  $-3 \geq x$   $x$  is smaller
- 4.)  $x \geq -4$  bigger on right



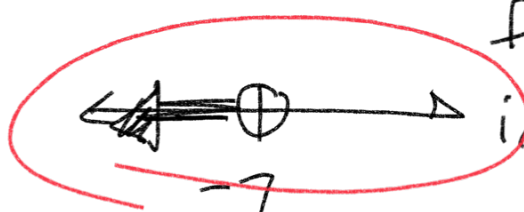
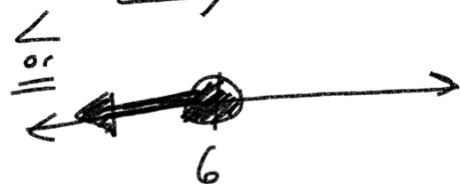
$$\begin{array}{rcl} x & + & 5 \leq 11 \\ & - & 5 \quad -5 \end{array}$$

$$x \leq 6$$

$$\begin{array}{l} > < \\ 0 \\ \geq \leq \end{array}$$

$$\begin{cases} -6x > 42 \\ \frac{-6x}{-6} > \frac{42}{-6} \\ x < -7 \end{cases}$$

When you multiply or divide by a negative, you flip the inequality.



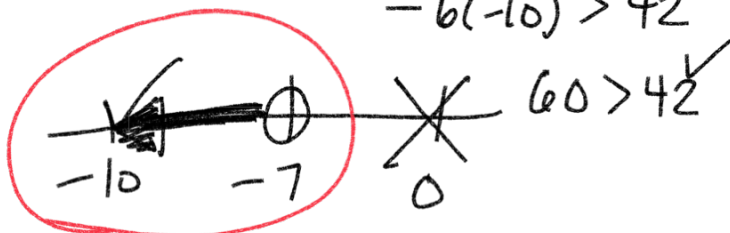
Why flip?

$$-6x > 42$$

$$-6(0) > 42$$

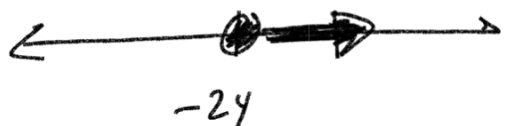
$$-6(-10) > 42$$

$$0 > 42$$



$$1.) 8\left(\frac{x}{8}\right) \geq (-3)8$$

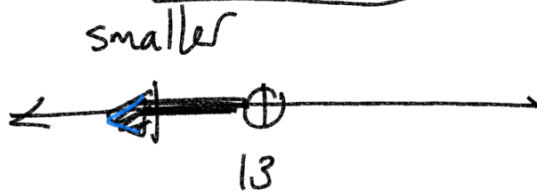
$$x \geq -24$$



$$2.) x - 4 < 9$$

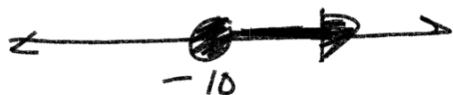
$$+4 \quad +4$$

$$x < 13$$



$$3.) \left(\frac{x}{-5}\right) \leq (2)(-5)$$

$$x \geq -10$$



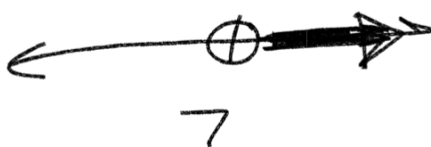
SMALL

BIG

$$4.) 13 < x + 6$$

$$-6 \quad -6$$

$$7 < x$$



Pre-Algebra  
Chapter 2 Practice Test

1.) (1 pt each) Properties of Numbers (2-1) Write the name of the property shown.

- a)  $3(a + b) = 3a + 3b$   
Distributive (C)
- b)  $2 \times 1 = 2$   
Identity (A)
- c)  $3 + 13 + 7 = 3 + 7 + 13$   
Commutative (ID)
- d)  $(17 \times 5) \times 20 = 17 \times (5 \times 20)$   
Associative (IU)  
Distributive (D)

2.) (4 pts each) Distributive Property (2-2) Simplify each expression.

a)  $7(5a + 3)$   
 $7(5a) + 7(3)$   
 $35a + 21$

~~$5a + 3 = 8a$~~  UNLIKE TERMS  
 ~~$a + a + a + a + a + 3 = 8a$~~   
 $8a = a + a + a + a + a + a + a + a$

b)  $(4 + x)(6)$

c)  $-3(y + 2)$   
 $-3y - 6$   
Change sign on both!

d)  $-8(11a - 9)$   
 $-88a + 72$

3.) (4 pts each) Simplifying Variable Expressions (2-3) Simplify each expression.

a)  $15a + 8b - 9a + 3b$

$$15a - 9a = 6a$$

$$8b + 3b = 11b$$

$$\boxed{6a + 11b}$$

b)  $8c + 7(2c - 3)$

c)  $3(4 + x) - 8(2x + 4)$

same thing  
 $-32 = +(-32)$

$$12 + 3x - 16x - 32$$

$$3x + (-16x) = -13x$$

$$12 + (-32) = -20$$

$$\boxed{-13x - 20}$$

d)  $9y - 2(3y - 5) + 7$

4.) (4 pts each) Solving Equations by Adding or Subtracting (2-5) Solve each equation.

a)  $b + 8 = 21$

$$\begin{array}{r} -8 \quad -8 \\ \hline b = 13 \end{array}$$

b)  $-14 + x = 18$

c)  $a - 11 = 54$   
 $+11 \quad +11$   
 $a = 65$

d)  $38 = y - 13$

5.) (4 pts each) Solving Equations by Multiplying or Dividing (2-6) Solve each equation.

a)  $\frac{6a}{6} = \frac{72}{6}$   
 $a = 12$


b)  $\left(\frac{y}{8}\right)8 = (5)8$   
 $y = 40$

c)  $-15t = 45$

d)  $\frac{w}{-9} = 12$

6.) (2 pts each) Inequalities and Their Graphs (2-8) Graph the solutions to each inequality on a number line.

a)  $6 > y$  *smaller*




*6 is bigger  
y is smaller*

*Bars are closed!!*

b)  $q \leq 12$

c)  $b > -3$  *number is not a solution*



$> <$   
 $\circ$

$\geq \leq$   
 $\bullet$

d)  $-5 \leq h$

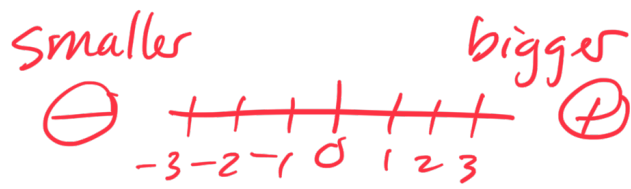
7.) (4 pts each) Solving One-Step Inequalities by Adding or Subtracting (2-9) Solve each inequality. Graph the solutions.

a)  $7 + a < 9$

b)  $29 \leq x + 12$   
 $-12 \quad -12$

$17 \leq x$





c)  $-30 > b - 9$   
 $+9 \quad +9$   
 $-21 > b$   
 smaller

-21

8.) (4 pts each) Solving One-Step Inequalities by Multiplying or Dividing (2-10) Solve each inequality. Graph the solutions.

a)  $9x \leq 36$

b)  $16 < \left(\frac{y}{5}\right) 5$        $> <$   
 $\geq \leq$   
 $80 < y$       BIGGER  
 $\uparrow$       80

c)  $\frac{48}{-8} \geq \frac{-8b}{-8}$       flip  
 $-6 \leq b$       BIGGER  
 bigger

-6