

Introduction to Inequalities

Homework

Name KEY
Date _____ Period _____

1. Write "true" or "false" for each inequality.

- a. $2 > 4$ False b. $-1 \geq 0$ False c. $8 \leq 8$ True
- d. $-2 < -3$ False e. $\frac{1}{2} > \frac{1}{3}$ True f. $2.3 < 2.03$ false
- g. $6 - 2 \geq 12 - 8$
 $4 \geq 4$ True h. $3 - 9 < 4 - 9$
 $-6 < -5$ True j. $(-4)^2 > -4^2$
 $16 > -16$ True

2. $-6 \leq -2$

- a. What happens to the inequality when you add 3 to both sides? nothing
 $-6 + 3 \leq -2 + 3$ $-3 \leq 1$
- b. What happens to the inequality when you subtract -4 from both sides? nothing
 $-6 - 4 \leq -2 - 4$ $-10 \leq -6$
- c. What happens to the inequality when you multiply by 5 on both sides? nothing
 $-6 \cdot 5 \leq -2 \cdot 5$ $-30 \leq -10$
- d. What happens to the inequality when you divide by -2 on both sides? inequality reverses
 $-6 \div -2 \leq -2 \div -2$ $+3 \geq +1$

3. Simplify and complete each statement by inserting an inequality symbol. An operation has been performed to both sides of the inequality; the first one has been started for you.

- a. $4 < 8$ b. $-3 < -2$ c. $5 > -9$ ★ reversed multiplying by negative
- $4 + 3 \leq 8 + 3$ $-3 - 5 \leq -2 - 5$ $5(-2) \underline{\quad} (-9)(-2)$
 $7 \leq 11$ $-8 \leq -7$ $-10 \leq +18$
- d. $x > -7$ e. $1 \leq 6$ ★ reversed f. $y \geq -8$ ★ reversed dividing by a negative
- $5(x) \underline{\quad} 5(-7)$ $1(-2) \underline{\quad} 6(-2)$ $\frac{y}{-2} \underline{\quad} \frac{-8}{-2}$
 $5x \geq -35$ $-2 \underline{\quad} -12$ $-\frac{y}{2} \leq +4$

4. Given $-2 < x < 10$, state a value for x that makes the statement true and value for x that makes the statement false.

True: $x = 8$
False: $x = -6, x = 12$