Name:_____   Date:_____

Math 9 HW Section 6.4 Solving Inequalities:

1. Indicate which side is bigger by writing the inequality symbol:

| a) 5 ☐ 10	b) 15 ☐ 12	c) −3 ☐ −12	d) (2×4.5) ☐ $\sqrt{80}$
e) 5.45 ☐ $\dfrac{18}{4}$	f) $\dfrac{100}{7}$ ☐ $14.\overline{28}$	g) $9.\overline{9999}$ ☐ 10	h) $1,000^{1000}$ ☐ $\dfrac{2}{0}$

2. Given each inequality, draw it on a number line

a) $x > 10$	b) $x < -4$
c) $x \leq 11$	d) $x \geq 5$
e) $3 \leq x \leq 10$	f) $-5 < x < 3$
g) $x < -4 \ \ or \ \ 5 < x$	c) $x \leq 10 \ \ or \ \ 20 \leq x$

3. Given each number line, write the inequality statement
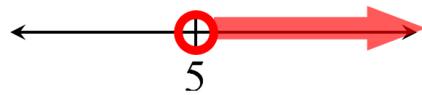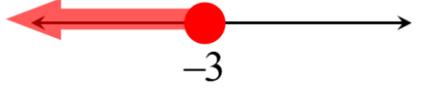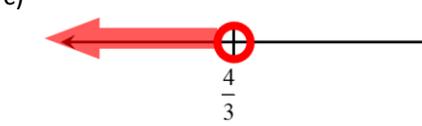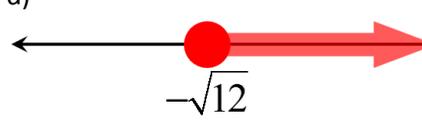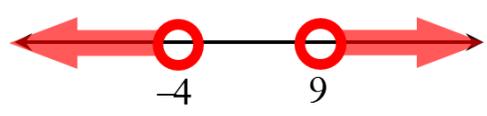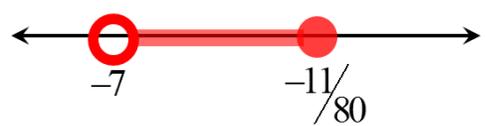
a)	b)
c)	d)
e)	f)
g)	h)
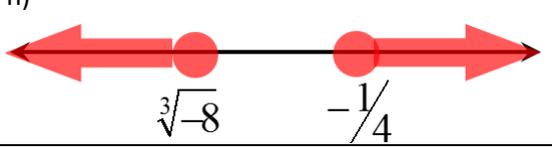
4. Solve each of the following inequalities. Draw your answer on a number line

a) $x+7<12$	b) $13+y<17$
c) $x+\dfrac{2}{5}<\dfrac{3}{10}$	d) $\dfrac{3}{2}+x\leq\dfrac{-5}{2}$
e) $-24\leq 6x$	f) $\dfrac{4}{3}x\geq 12$
g) $-18\geq -10-x$	h) $8-x\leq -15$
i) $8\leq 7x+12-3x$	j) $7x-20<12x+5$

5. Solve the following inequalities algebraically:

a) $4x+13\geq 6(4-5x)$	b) $95+2x>10(14+x)-3x$
c) $7x+21-15x>-4x-6-13x$	d) $20\leq -4x$

6. What is the difference between the two inequalities? Explain? $x < 5$ vs $x \le 5$

7. Write an inequality for each expression below:
    a. Jack's height (H) is taller than 6 feet

    b. Andrew bank account (A) has less than $500

    c. The distance (D) that Selina ran was at least 15km

    d. The number of friends (F) that Kenny has is between 1 to 12

    e. William's IQ (W) is less than 110

    f. Heather's IQ (H) is at most 110

8. Suppose "x" is an integer. How many values of "x" will satisfy the equality?
    $1 < 2^x < 1000$

9. Suppose "x" is an integer. How many values of "x" will satisfy the equality?
    $100 < 2^x < 10,000$

10. How many integer values of "x" are there such that the inequality is true?

$$1 < x^3 < 1000$$

11. Jake is less than 10 years old. Write an inequality for Jake's age

12. Tom took his girlfriend out for his dinner. His budget was to spend up to $300. Write an inequality for how much Tom can spend.

13. Sandy has $20 to spend on donuts. Each donut costs $2.75. Write an inequality to express how many donuts Sandy can buy.

14. Jeff wants to buy a cellular phone plan so can watch YOUTUBE on his phone. Rogers charges base $20 a month plus $2.50 on each GB of data. If Jeff has $100 a month to spend on data for his phone, how many GB of YOUTUBE can he afford to watch?