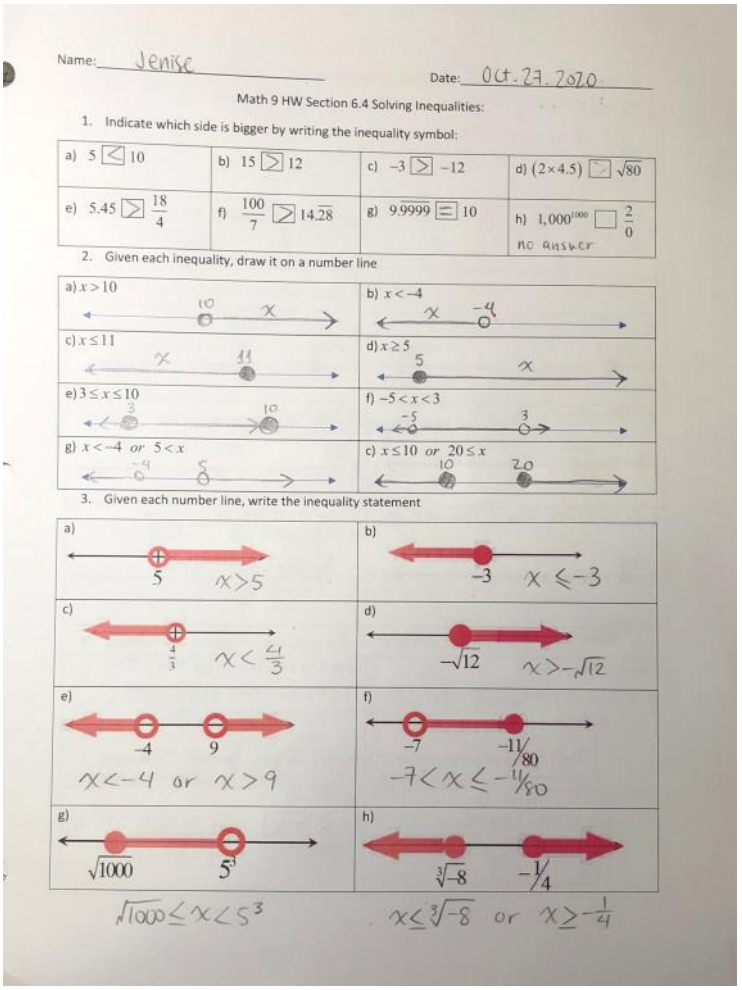
6.4

Wednesday, October 14, 2020 10:28 PM



Name: Jenise Date: Oct. 27. 2020

Math 9 HW Section 6.4 Solving Inequalities:

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

a) $5 \boxed{<} 10$	b) $15 \boxed{>} 12$	c) $-3 \boxed{>} -12$	d) $(2\times4.5) \boxed{=} \sqrt{80}$
e) $5.45 \boxed{>} \frac{18}{4}$	f) $\frac{100}{7} \boxed{>} 14.28$	g) $9.\overline{9999} \boxed{=} 10$	h) $1{,}000^{1000} \boxed{\ } \frac{2}{0}$ no answer

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

a) $x > 10$ — 10, x

b) $x < -4$ — x, -4

c) $x \leq 11$ — x, 11

d) $x \geq 5$ — 5, x

e) $3 \leq x \leq 10$ — 3, 10

f) $-5 < x < 3$ — -5, 3

g) $x < -4$ or $5 < x$ — -4, 5

c) $x \leq 10$ or $20 \leq x$ — 10, 20

3. Given each number line, write the inequality statement

a) 5 — $x > 5$

b) -3 — $x \leq -3$

c) $\frac{4}{3}$ — $x < \frac{41}{3}$

d) $-\sqrt{12}$ — $x > -\sqrt{12}$

e) -4, 9 — $x < -4$ or $x > 9$

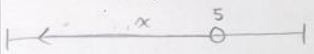
f) -7, $-11/80$ — $-7 < x \leq -11/80$

g) $\sqrt{1000}$, 5^3 — $\sqrt{1000} \leq x < 5^3$

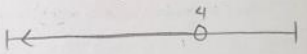
h) $\sqrt[3]{-8}$, $-1/4$ — $x \leq \sqrt[3]{-8}$ or $x \geq -\frac{1}{4}$

4. Solve each of the following inequalities. Draw your answer on a number line

a) $x+7<12$ $x<5$



b) $13+y<17$ $y<4$

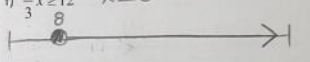


c) $x+\frac{2}{5}<\frac{3}{10}$ $x<-\frac{1}{10}$

d) $\frac{3}{2}+x\leq\frac{-5}{2}$ $x\leq -4$

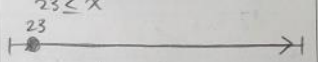
e) $-24\leq 6x$ $-4\leq x$

f) $\frac{4}{3}x\geq 12$ $x\geq 8$

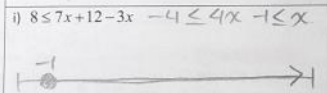


g) $-18\geq -10-x$ $x\geq 8$

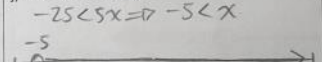
h) $8-x\leq -15$ $23\leq x$



i) $8\leq 7x+12-3x$ $-4\leq 4x$ $-1\leq x$



j) $7x-20<12x+5$ $-25<5x$ $-5<x$



5. Solve the following inequalities algebraically:

a) $4x+13\geq 6(4-5x)$

$4x+13\geq 24-30x$

$34x\geq 11$

$\boxed{x\geq \frac{34}{11}}$

b) $95+2x>10(14+x)-3x$

$95+2x>140+10x-3x$

$95+2x>140+7x$

$-45>5x$

$\boxed{-9>x}$

c) $7x+21-15x>-4x-6-13x$

$-8x+21>-17x-6$

$9x>-27$

$\boxed{x>-3}$

d) $20\leq -4x$

$\boxed{-5\geq x}$

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

$X < 5$ means its less than 5

$X \leq 5$ means it could be less than or equal to 5

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

      $H > 6$

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

      $500 > A$

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

      $15 \leq D$

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

      $12 > F > 1$

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

      $0 < W < 110$

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

      $110 \geq H > 0$

8. Suppose "x" is an integer. How many values of "x" will satisfy the equality?

   $1 < 2^x < 1000$

   $2^{10} = 1024$ so 9 : 1, 2, 3, 4, 5, 6, 7, 8, 9

9. Suppose "x" is an integer. How many values of "x" will satisfy the equality?

   $100 < 2^x < 10{,}000$ $2^{14} = 16384$

   so 7 : 7, 8, 9, 10 $2^6 = 64$
   11, 12, 13,

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

    $1 < x^3 < 1000$

    $10^3 = 1000$

    so 8 :, 2, 3, 4, 5, 6, 7, 8, 9

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

    $10 > J > 0$

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.

    $x \leq 300$ he can spend up to 300$

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

    $2.75d \leq 20$ SHe can buy 7 donuts

    $d \leq 7$

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?

    $20 + 2.5G \leq 100$

    $2.5G \leq 80$

    $G \leq 32$

    He can afford 32 GB of youtube.