Sec 2.3 – Solving Algebraic Inequalities

Name:

Find the values for the variable that makes the statement true. (SHOW WORK NEATLY)

1. $3x > 6$

2. $20 \geq 4m$

3. $-3x < 12$

4. $3b + 2 \leq 20$

5. $8a - 12 > 2a$

6. $2p - 6 + 2p + 1 \leq 11 + 8p$

9. $8 \geq 3(m - 4) - 5m$

10. $3x + \frac{3}{4} - \frac{1}{2}x > \frac{5}{2}$

I. Eliminate parenthesis by distributing.

Example

$$2(3x-4) > 5$$

$$6x - 8 > 5$$

II. Eliminate fractions by multiplying each term by the lowest common denominator.

Example

$$\frac{1}{3}x - \frac{1}{2} \leq \frac{x}{4}$$

$$\frac{12}{1}\cdot\frac{1}{3}x - \frac{12}{1}\cdot\frac{1}{2} \leq \frac{12}{1}\cdot\frac{x}{4}$$

$$4x - 6 \leq 3x$$

III. Combine like terms on each side of the equation.

Example

$$4x + 2 - 7x > 2 + x + 8$$

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

IV. Move the "variable" term to one side of the equation and the constants to the other side using addition or subtraction.

Example

$$3x + 2 \geq 6x - 5$$

$$-3x \qquad -3x$$

$$2 \geq 3x - 5$$

$$+5 \qquad +5$$

$$7 \geq 3x$$

V. Divide both sides by the coefficient (the number in front of the variable).

Example

$$-4x > 12$$

$$\frac{-4x}{-4} \; ? \; \frac{12}{-4}$$

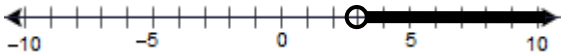
$$x < 3$$

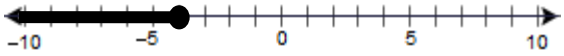
Find the values for the variable that makes the statement true. (SHOW WORK NEATLY)

9. $2^x > 32$

10. $5^x \leq 125$

Write an inequality statement for each graph using *x*.

11. 

12. 

Solve the following inequalities for the requested variable.

13. $4x - 2y \geq 6 - 2x$ (solved for y)

14. $3(a - b) + 5b < 8b - 12$ (solved for a)