

ALGEBRA 1 / UNIT 3 / LESSON 4

PRACTICE PROBLEMS 4

Solve and graph the following inequalities.

1. $d - 12 \leq -4(-3 - d)$

2. $y + 9 \leq 4(-6 + 3y)$

3. $-6(b + 1) - 2 < 12 - 2b$

4. $t - 12 > -4(-3 + 3t) + 2$

5. $x - 15 \geq -2(-2 + 5x) + 3$

6. $-(b - 15) - 1 > -6 + 3b$

7. $2(z + 8) > 4 + 3z$

8. $3x - 10 > -2(6 - 2x)$

9. $24 - 2p \geq -3(p - 3) + 4p$

10. $3(2 - 6p) + 4 < -4(p + 2) - 5p$

SOLUTIONS

Lesson 4

Solve and graph the following inequalities.

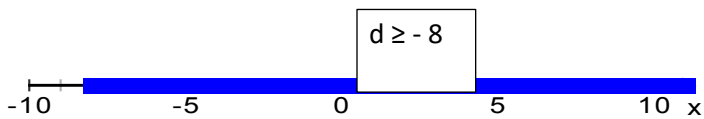
1. $d - 12 \leq -4(-3 - d)$

$$d - 12 \leq 12 + 4d$$

$$-24 \leq +3d$$

$$-8 \leq d$$

Graph the solution on a number line.



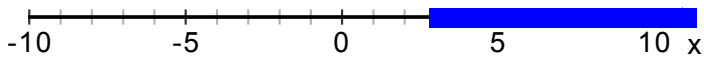
2. $y + 9 \leq 4(-6 + 3y)$

$$y + 9 \leq -24 + 12y$$

$$33 \leq 11y$$

$$3 \leq y$$

Graph the solution on a number line.



3. $-6(b + 1) - 2 < 12 - 2b$

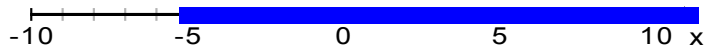
$$-6b - 6 - 2 < 12 - 2b$$

$$-6b - 8 < 12 - 2b$$

$$-20 < 4b$$

$$-5 < b$$

Graph the solution on a number line.



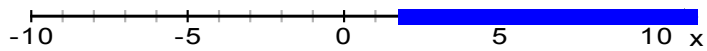
4. $t - 12 > -4(-3 + 3t) + 2$

$$t - 12 > 12 - 12t + 2$$

$$13t > 26$$

$$t > 2$$

Graph the solution on a number line.



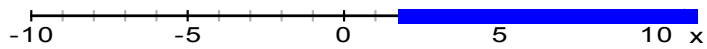
5. $x - 15 \geq -2(-2 + 5x) + 3$

$$x - 15 \geq +4 - 10x + 3$$

$$11x \geq 22$$

$$x \geq 2$$

Graph the solution on a number line.



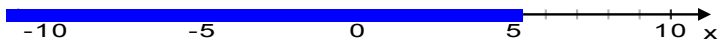
6. $-(b - 15) - 1 > -6 + 3b$

$$-b + 15 - 1 > -6 + 3b$$

$$20 > 4b$$

$$5 > b$$

Graph the solution on a number line.



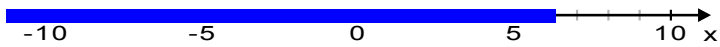
7. $2(z + 8) > 4 + 4z$

$$2z + 16 > 4 + 4z$$

$$12 > 2z$$

$$6 > z$$

Graph the solution on a number line.

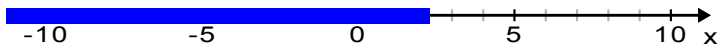


8. $3x - 10 > -2(6 - 2x)$

$$3x - 10 > -12 + 4x$$

$$2 > x$$

Graph the solution on a number line.



9. $24 - 2p \geq -3(p - 3) + 4p$

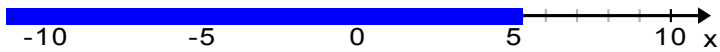
$$24 - 2p \geq -3p + 9 + 4p$$

$$24 - 2p \geq p + 9$$

$$15 \geq 3p$$

$$5 \geq p$$

Graph the solution on a number line.



10. $3(2 - 6p) + 4 < -4(p + 2) - 5p$

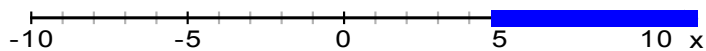
$$6 - 18p + 4 < -4p - 8 - 5p$$

$$10 - 18p < -9p - 8$$

$$18 < 9p$$

$$2 < p$$

Graph the solution on a number line.

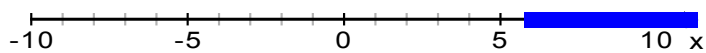


11. A charitable organization in your town has a goal to collect at least 300 blankets for a homeless shelter. A church donated 75 blankets and an anonymous donor gave them 45 blankets. Write and solve an inequality to find out how many blankets the organization must now purchase to meet or exceed their goal.

$$x + 120 \geq 300$$

$$x \geq 180$$

Graph the solution on a number line. Use multiples of 30



12. You know that a rope is no more than 185 feet long. You need to cut the rope into three pieces. the second piece is to be three times as long as the first piece, and the third piece must be 25 feet long. What is the maximum length of the second piece?

$$4x + 25 \leq 185$$

$$4x \leq 160$$

$$x \leq 40 \quad \text{Therefore the maximum length of the second piece is 40 feet.}$$

Graph the solution on a number line. **Let each unit equal 20 feet.**

