Algebra Unit 5 Study Guide
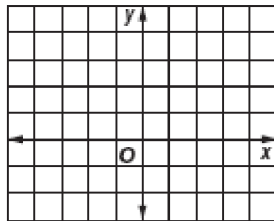
1. Use a graph to solve $2y - 4x < 8$.
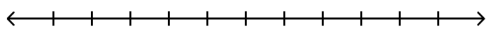

Solve the inequality.

2. $2h + 8 > 4$

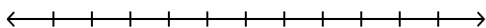3. $\dfrac{b}{2} \geq 5$

4. $3(4g - 6) - 6g \geq -4(g - 5) + 2$

5. $4a + 4 - 8a > 16$

Solve the inequality. Graph the solution on a number line.

11. $1 \geq 10 + p$

12. $y + 5 > -3$

6. $\dfrac{3x - 8 + 5x}{4} < 2$
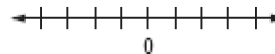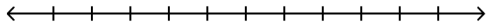
7. $3 \geq -9n - 4 + 4n$

8. $\dfrac{-3b}{8} > 9$

9. $-2(6z + 8) < -6(2z - 1)$

Solve each compound inequality. Then graph the solution set.

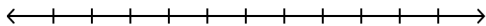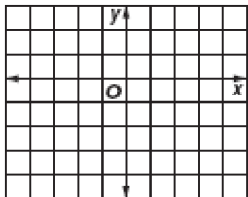10. $\dfrac{w}{3} < 1$ or $3w + 5 > 11$

13. Solve $|d - 5| > 10$.

←——+——+——+——+——+——+——+——+——+——+——→

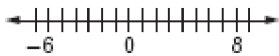14. Solve $|3c - 4| \geq 7$.

←——+——+——+——+——+——+——+——+——+——+——→

15. **SHOPPING** Matthew is shopping for shoes and socks. He has $75.00 to spend. The shoes he likes cost $28.00, and the socks cost $4.00. Write an inequality for this situation. Can Matthew buy 2 pairs of shoes and 5 pairs of socks?
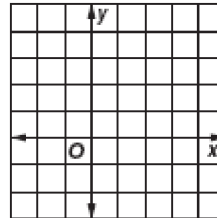
16. Use a graph to solve $2x - 3y \leq 6$.

Solve each compound inequality, and graph the solution set.

17. $2(x - 14) - x < 7(x + 2) + x \leq x + 70$
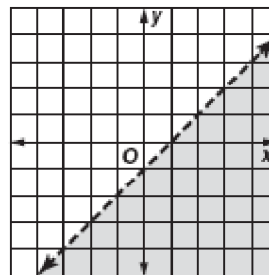
−6   0   8

18. Greg keeps the pH in his fish tank within 0.2 of a pH of 7.0. Write the range of pH levels for his fish tank.
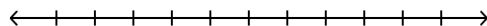
19. Graph $y > -\dfrac{1}{3}x + 2$.

20. At a track meet, the height of John's high jump was within 6 inches of the track record of 76 inches. What is the range of heights for John's jump?

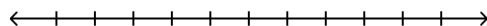21. What inequality has the solution set shown in the graph?

Solve the compound inequality and graph the solution set.

22. $2k + 3 > 1$ and $3k - 3 \leq 6$

←——+——+——+——+——+——+——+——+——+——+——→

23. $u + 5 \geq 1$ and $u - 6 < 3$

←——+——+——+——+——+——+——+——+——+——+——→

Solve each inequality.

24. $-3x + 2(6x - 7) > 4(3 - 2x) + 17x - 8$

Demonstrate your knowledge by giving a clear, concise solution to each problem. Be sure to include all relevant drawings and justify your answers. You may show your solution in more than one way or investigate beyond the requirements of the problem.

25. Determine if the open sentence $|x - 2| > 4$ and the compound inequality $-2x < 4$ or $x > 6$ have the same solution set.

26. Ian has \$6000. He wants to buy a car within \$1500 of this amount. Define a variable, write an open sentence, and find the range of car prices.

27. **EXPENSES** Camille has no more than \$20.00 to spend each week for lunch and bus fare. Lunch costs \$3.00 each day, and bus fare is \$0.75 each ride. Write an inequality for this situation. Can Camille buy lunch 5 times and ride the bus 8 times in one week?
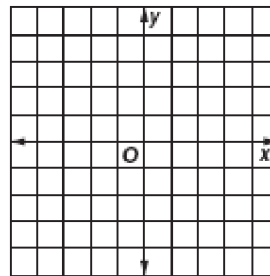
28. What inequality has the solution set shown in the graph?
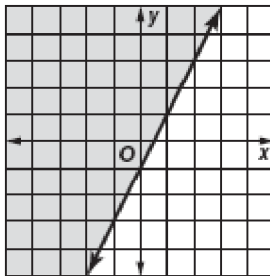
29. Graph $-y \le 3x$.
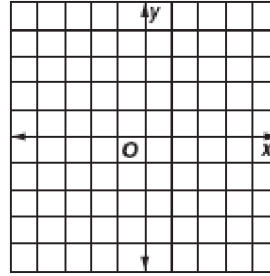
30. Use a graph to solve $x + 3y > -12$.

31. **DOGS** Each afternoon Maria walks the dogs at a local pet shelter for up to 2 hours. Maria spends 16 minutes walking a large dog and 12 minutes walking a small dog. Write an inequality for this situation. If Maria walked 9 dogs in one afternoon, what is the greatest number of large dogs that she could have walked that afternoon?