NAME _____ DATE _____

Module 6 Solving Absolute Value Equations and Inequalities

Lesson 3 Solving Inequalities Using "Absolute Value is Less Than"

Solve each inequality and graph the solution set.

1. $|r| \leq 4$ _____

2. $\left|\frac{c}{5}\right| < -2$ _____

3. $|f - 3.5| \geq 4$ _____

4. $|5m - 5| \leq 20$ _____

5. $\left|3 + \frac{q}{2}\right| < 1$ _____

6. $|y| - 4 \leq -1$ _____

7. $\frac{|4w|}{2} < 6$ _____

8. $4|3b + 1| < 0$ _____

Match the graph to the correct inequality.

9.

A. $|c + 1.5| \leq 1$

B. $|c - 1| \leq -2.5$

C. $|c + 2.5| \leq 1$

D. $|c + 4.5| \leq 6$

10.

A. $4 + |x| \leq 6$

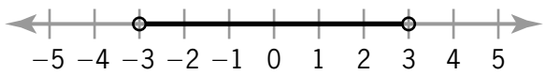
B. $2 + |x| < 2$

C. $2 + |x| \leq 2$

D. $4 + |x| < 6$

Journal

1. Why does the inequality $2|9k + 4| < 0$ have no solution?
2. Is $3(x + 2)| < 15$ the same as writing $3|x + 2| < 15$? Verify your answer by solving each inequality.
3. Write an absolute value inequality using "less than" whose solution is graphed below. Explain how you found your answer.



4. Explain why the inequality $|x| < 5$ can mean the distance between zero and x is less than 5.
5. Use your response to question 4 to explain what distance is represented by $|y - 3| < 2$.

Cumulative Review

Rewrite each sentence as an algebraic equation or inequality.

1. Four times a number b is equal to nineteen.

2. Five less than a number m squared is two.

3. Five is less than a number m squared.

4. The product of x, y, and z, is zero.

5. Twelve increased by m is greater than n increased by two.

6. A number k increased by g is equal to the sum of k and h.

7. Half of y decreased by seven is equal to z.

8. Ten divided by p is at least negative sixteen.

9. Seven times j is no more than k.

10. Eight more than the square root of x is nine.