READY, SET, GO! **Name** **Period** **Date**

READY

Topic: Write an equation from a context. Interpret notation for inequalities.

Write an equation that describes the story. Then answer the question asked by the story.

1. Virginia's Painting Service charges $10 per job and $0.20 per square foot. If Virginia earned $50 for painting one job, how many square feet did she paint at the job?

2. Renting the ice-skating rink for a party costs $200 plus $4 per person. If the final charge for Dane's birthday party was $324, how many people attended his birthday party?

Indicate if the following statements are <u>true</u> or <u>false</u>. Explain your thinking.

3. The notation $12 < x$ means the same thing as $x < 12$. It works just like $12 = x \text{ and } x = 12$.

4. The inequality $-2(x + 10) \geq 75$ says the same thing as $-2x - 20 \geq 75$. I can multiply by -2 on the left side without reversing the inequality symbol.

5. When solving the inequality $10x + 22 < 2$, the second step should say $10x > -20$ because I added -22 to both sides and I got a negative number on the right.

6. When solving the inequality $-5x \geq 45$, the answer is $x \leq -9$ because I divided both sides of the inequality by a negative number.

7. The words that describe the inequality $100 \leq x$ are "*x is greater than or equal to 100.*"

SET

Topic: Solve inequalities. Verify that given numbers are elements of the solution set.

Solve for x. (Show your work.) Indicate if the given value of x is an element of the solution set.

8. $2x - 9 < 3$

Is this value part of the solution set? $x = 6$; *yes*? *no*?

9. $4x + 25 > 13$

Is this value part of the solution set? $x = -5$; *yes*? *no*?

10. $6x - 4 \leq -28$

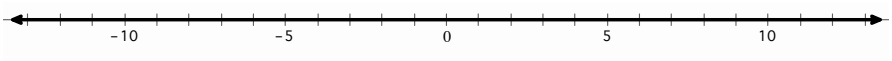
Is this value part of the solution set? $x = -10$; *yes*? *no*?

11. $3x - 5 \geq -5$

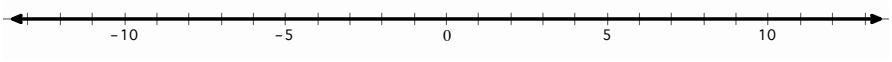
Is this value part of the solution set? $x = 1$; *yes*? *no*?

Solve each inequality and graph the solution on the number line.

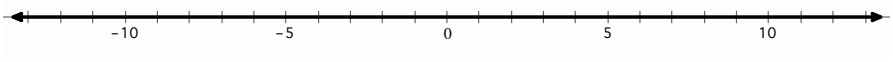
12. $x + 9 \leq 7$



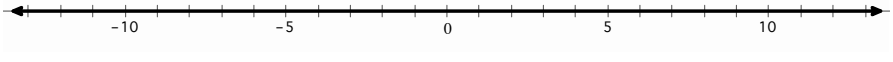
13. $-3x - 4 > 2$



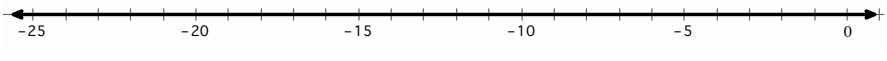
14. $3x < -6$



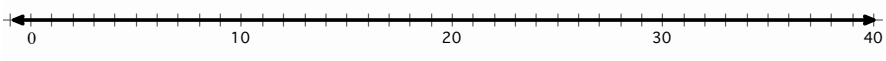
15. $\frac{x}{5} > -\frac{3}{10}$



16. $-10x > 150$



17. $\frac{x}{-7} \geq -5$



Topic: Write and solve inequalities from a context.

18. To take sweepstakes for the largest pumpkin crop at the Riverside County Fair, the average weight of Ethan's two pumpkins must be greater than 875 lbs. One of his pumpkins weighs 903 lbs. What is the least amount of pounds the second pumpkin could weigh in order for Ethan to win the prize?

    a) Write an inequality that models this situation. Be sure to define your variables.

    b) Describe in words the quantities that would work in this situation.

    c) Write your answer in both interval and set notation.

19. The average of Aaron's three test scores must be at least 93 to earn an A in the class. Aaron scored 89 on the first test and 94 on the second test. What scores can Aaron get on his third test to guarantee an A in the class?

    a) Write and solve an inequality that models this situation. Be sure to define your variables.

    b) Describe in words the quantities that would work in this situation.

    c) Write your answer in both interval and set notation.

20. A cell phone company offers a plan that costs $35.99 and includes unlimited texting. Another company offers a plan that costs $19.99 and charges $0.25 per text. For what number of texts does the second company's plan cost more than the first company's plan?

    a) Write and solve an inequality that models this situation. Be sure to define your variables.

    b) Describe in words the quantities that would work in this situation.

    c) Write your answer in both interval and set notation.

GO

Topic: Use substitution to solve linear systems

Solve each system of equations by using substitution.

Example: $\begin{cases} y = 12 \\ 2x - y = 14 \end{cases}$

The first equation states that $y = 12$. *That information can be used in the second equation to find the value of x by replacing y with 12. The second equation now says* $\mathbf{2}\boldsymbol{x} - (\mathbf{12}) = \mathbf{14}$. *Solve this new equation by adding 12 to both sides and then dividing by 2. The result is x = 13.*

21. $\begin{cases} y = 5 \\ -x + y = 1 \end{cases}$

22. $\begin{cases} x = 8 \\ 5x + 2y = 0 \end{cases}$

23. $\begin{cases} 2y = 10 \\ 4x - 2y = 50 \end{cases}$

24. $\begin{cases} 3x = 12 \\ 4x - y = 5 \end{cases}$