

Solving Inequalities

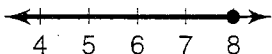
Solve $x + 4 \leq 12$. Then graph the solution.

$$x + 4 \leq 12$$

$x + 4 - 4 \leq 12 - 4$ Undo addition by subtracting 4 from both sides.

$$x \leq 8$$

The solution is $x \leq 8$.



Check: Test a point on the graph, like 6.

$$x + 4 \leq 12$$

$$6 + 4 \leq 12$$

$$10 \leq 12$$

The inequality is true, so $x \leq 8$.

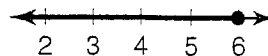
Solve $5n \leq 30$. Then graph the solution.

$$5n \leq 30$$

$\frac{5n}{5} \leq \frac{30}{5}$ Undo multiplication by dividing both sides by 5.

$$n \leq 6$$

The solution is $x \leq 6$.



Check: Test a point on the graph, like 2.

$$5n \leq 30$$

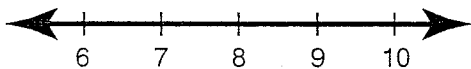
$$5(2) \leq 30$$

$$10 \leq 30$$

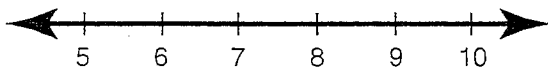
The inequality is true, so $x \leq 6$.

Solve each inequality. Graph and check the solution.

1. $k + 1 < 9$



2. $3r \geq 21$



3. **Number Sense** Would the solutions for $x - 3 < 9$ be to the left or to the right of 12 on a number line? Explain.

Solving Inequalities

Solve each inequality. Graph and check the solution.

1. $z + 2 < 12$ _____

2. $p - 4 > 5$ _____

3. $6x \geq 18$ _____

4. $\frac{t}{4} \geq 10$ _____

5. **Number Sense** How can you tell that $x = 18.5$ is NOT a solution of $x - 13.5 > 18.5$ without adding?

The quiz show awards prizes based on the number of questions a contestant answers correctly.

Quiz Show Prizes	
Correct answers ≥ 30	Car
Correct answers ≥ 25	Stereo
Correct answers ≥ 20	Movie tickets

6. What prize will Whitney get if she answers 27 questions correctly?

7. What prize will Abraham get if he answers 24 questions correctly?

Test Prep

8. Which is a value of f if $f + 8 > 35$?

A. 23

B. 25

C. 27

D. 31

9. **Writing in Math** Explain how you would solve the inequality $3x \geq 27$.
