

Name: \_\_\_\_\_

Identify each of the following as an expression, an equation, or an inequality.

- |                                                                |            |          |            |
|----------------------------------------------------------------|------------|----------|------------|
| 1. $5x + y = 7g$                                               | Expression | Equation | Inequality |
| 2. $5 \leq 3 - d$                                              | Expression | Equation | Inequality |
| 3. $6t$                                                        | Expression | Equation | Inequality |
| 4. $19 + x > 4$                                                | Expression | Equation | Inequality |
| 5. $4c - 4h - 2t$                                              | Expression | Equation | Inequality |
| 6. $12 - g$                                                    | Expression | Equation | Inequality |
| 7. $x + 5 \geq 4 - t$                                          | Expression | Equation | Inequality |
| 8. $6 + f - 7t = 35$                                           | Expression | Equation | Inequality |
| 9. $4 + 2 = x - p$                                             | Expression | Equation | Inequality |
| 10. $4st$                                                      | Expression | Equation | Inequality |
| 11. $4st = 6j$                                                 | Expression | Equation | Inequality |
| 12. $Bg > 8$                                                   | Expression | Equation | Inequality |
| 13. $9 \leq 4 - r$                                             | Expression | Equation | Inequality |
| 14. $13 = 5 + k$                                               | Expression | Equation | Inequality |
| 15. Give an example of an expression, equation, and inequality |            |          |            |
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Name \_\_\_\_\_

# Solving Inequalities

R 12-2

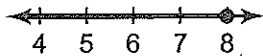
Solve  $x + 4 \leq 12$ . Then graph the solution.

$$x + 4 \leq 12$$

$x + 4 - 4 \leq 12 - 4$  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  $x \leq 8$ .

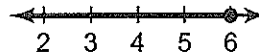
Solve  $5n \leq 30$ . Then graph the solution.

$$5n \leq 30$$

$\frac{5n}{5} \leq \frac{30}{5}$  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.

$$5n \leq 30$$

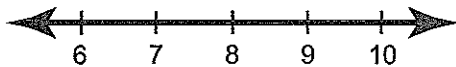
$$5(2) \leq 30$$

$$10 \leq 30$$

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.

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Name \_\_\_\_\_

# Solving Inequalities

PS 12-2

**Clothing** The chart shows the cost of each item at a new clothing store in the mall. Write and solve an inequality for 1–6.

Shirt	\$12
Baseball hat	\$8
Shoes	\$28
Tie	\$6
Jacket	\$35

1. Jason has a coupon for \$5 off any item. If he has \$10, which items can he buy?

\_\_\_\_\_

2. Charlie has a coupon for \$2 off any item. He can spend no more than \$6. Which items can he buy?

\_\_\_\_\_

3. Jarvis has \$72. Which items can he not afford to buy 6 of?

\_\_\_\_\_

4. Fred has a coupon for half off any item. If he has \$15, which items can he buy?

\_\_\_\_\_

\_\_\_\_\_

5. Bimal had a coupon for \$3 off any item. With the coupon, he spent more than \$30 on one item. Which item did he buy?

\_\_\_\_\_

6. **Writing in Math** If Roberto bought three of the same item for less than \$20, which item did he buy? Explain.

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Name \_\_\_\_\_

# Solving Inequalities

P 12-2

Solve each inequality. Graph and check the solution.

1.  $z + 2 < 12$  \_\_\_\_\_

2.  $p - 4 > 5$  \_\_\_\_\_

3.  $6x \geq 18$  \_\_\_\_\_

4.  $\frac{r}{4} \geq 10$  \_\_\_\_\_

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

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

Quiz Show Prizes	
Correct answers $\geq 30$	Car
Correct answers $\geq 25$	Stereo
Correct answers $\geq 20$	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?

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## 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  $3x \geq 27$ .

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