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# Equations and Inequalities

## 9.1A Algebraic Equations

### Basics

1. Determine whether  $r = 4$  is a solution to each equation.

(a)  $r + \frac{3}{4} = \frac{19}{4}$

(b)  $49 = 45 + r$

(c)  $88 = 92 - r$

(d)  $16 - r = \frac{12}{3}$

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# Equations and Inequalities

## 9.1B Balancing Equations

### Basics

5. Solve each equation and check your answer.

(a)  $q + 9 = 27$

(b)  $p + 3.2 = 9$

(c)  $y + \frac{3}{15} = \frac{4}{5}$

(d)  $t + 16.8 = 55$

**Practice**

10. Solve each equation and check your answer.

(a)  $\frac{2}{3}m = 12$

(b)  $\frac{7}{8}e = 4.2$

(c)  $\frac{3}{4}r = 75$

(d)  $\frac{2}{5}d = \frac{1}{2}$

(e)  $\frac{7}{9}b + 3 = 66$

**11.** Isaac received 29 baseball cards for his birthday to add to his collection. He now has 413 baseball cards. How many baseball cards did Isaac have before his birthday? Write an equation and solve.

**12.** One morning, a teacher corrected some math tests. In the afternoon, the teacher corrected 17 more math tests. At that point, there were 43 math tests corrected. How many math tests did the teacher correct in the morning?



**Challenge**

23. If  $\frac{1}{4}$  of a number  $n$  is  $h$ , what is two times  $n$ ?

24. Ani has a coin collection. In her collection, she has 8 more dimes than nickels. The value of all the dimes and nickels is \$2.00. How many nickels does Ani have in her collection?



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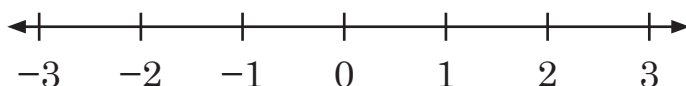
# Equations and Inequalities

## 9.2B Graphing Inequalities Using a Number Line

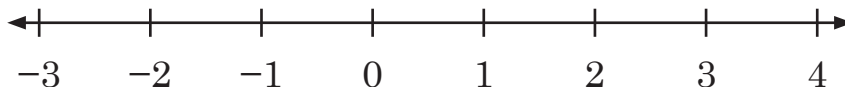
### Basics

4. Graph the solution for each of the inequalities.

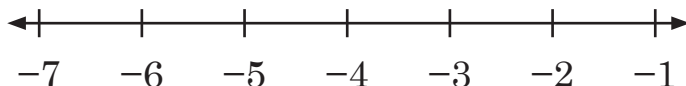
(a)  $x > -2$



(b)  $x \geq -2$



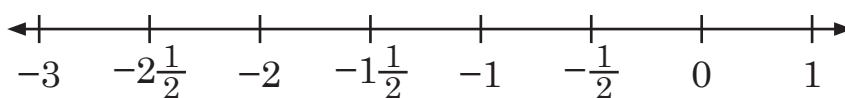
(c)  $x < -4$



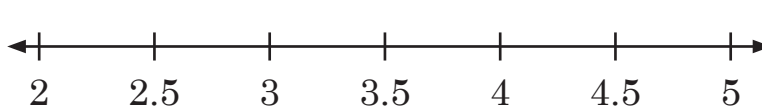
(d)  $x \leq 8$



(e)  $x \geq -2\frac{1}{2}$

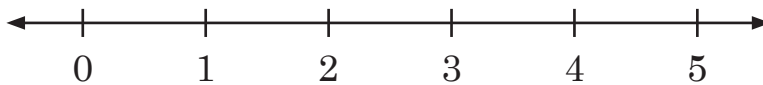


(f)  $x < 3.5$



**Practice**

7. Each student in a sixth grade class spent at least two hours volunteering in the community.
- (a) Write three different possible values for the number of hours spent volunteering by a student in the sixth grade class.
- (b) Write an inequality to represent the number of hours spent volunteering by each student in the class.
- (c) Graph the inequality on a number line.



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## Challenge

8. For each full hour Linda spends walking dogs, she earns \$16. She needs at least \$128 to buy art supplies. How many hours does Linda need to work to pay for the art supplies? Write an inequality and solve.
9. In order to be allowed to ride a merry-go-round, a child must be at least 3 feet tall, but no taller than 4.5 feet. Write an inequality and draw a graph to represent this situation.

