

Do ODD only !!  
on this page

GUIDED PRACTICE

1. Vocabulary How is a solution of an inequality like a solution of an equation?

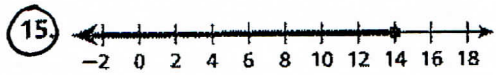
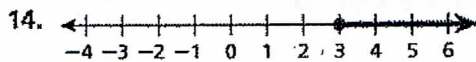
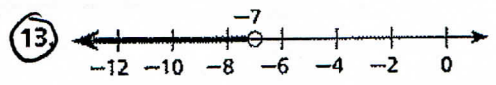
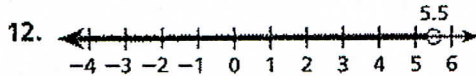
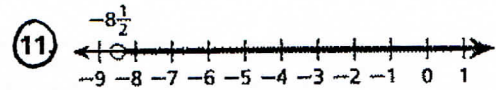
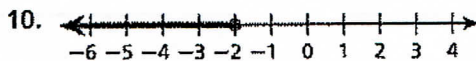
SEE EXAMPLE 1 Describe the solutions of each inequality in words.

- 2.  $g - 5 \geq 6$
- 3.  $-2 < h + 1$
- 4.  $20 > 5t$
- 5.  $5 - x \leq 2$

SEE EXAMPLE 2 Graph each inequality.

- 6.  $x < -5$
- 7.  $c \geq 3\frac{1}{2}$
- 8.  $(4 - 2)^3 > m$
- 9.  $p \geq \sqrt{17 + 8}$

SEE EXAMPLE 3 Write the inequality shown by each graph.



SEE EXAMPLE 4 Define a variable and write an inequality for each situation. Graph the solutions.

- 16. There must be at least 20 club members present in order to hold a meeting.
- 17. A trainer advises an athlete to keep his heart rate under 140 beats per minute.

PRACTICE AND PROBLEM SOLVING

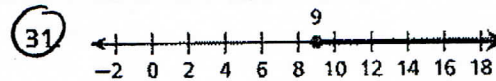
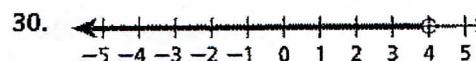
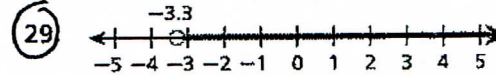
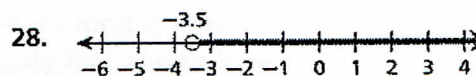
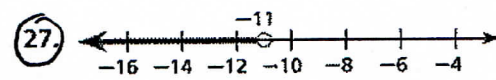
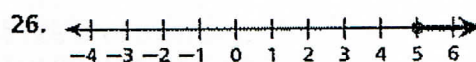
Describe the solutions of each inequality in words.

- 18.  $-2t > -8$
- 19.  $0 > w - 2$
- 20.  $3k > 9$
- 21.  $\frac{1}{2}b \leq 6$

Graph each inequality.

- 22.  $7 < x$
- 23.  $t \leq -\frac{1}{2}$
- 24.  $d > 4(5 - 8)$
- 25.  $t \leq 3^2 - 2^2$

Write the inequality shown by each graph.



Define a variable and write an inequality for each situation. Graph the solutions.

- 32. The maximum speed allowed on Main Street is 25 miles per hour.
- 33. Applicants must have at least 5 years of experience.

Independent Practice

For Exercises	See Example
18-21	1
22-25	2
26-31	3
32-33	4

Extra Practice

See Extra Practice for more Skills Practice and Applications Practice exercises.

## LESSON

2.2

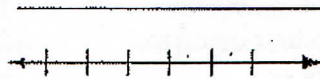
## Practice

## Solving Inequalities by Adding or Subtracting

Solve each inequality and graph the solutions.

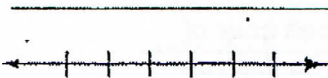
1.  $b + 8 > 15$

2.  $t - 5 \geq -2$



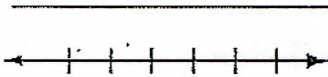
3.  $-4 + x \geq 1$

4.  $g + 8 < 2$



5.  $-9 \geq m - 9$

6.  $15 > d + 19$



Answer each question.

7. Jessica makes overtime pay when she works more than 40 hours in a week. So far this week she has worked 29 hours. She will continue to work  $h$  hours this week. Write, solve, and graph an inequality to show the values of  $h$  that will allow Jessica to earn overtime pay.



8. Henry's MP3 player has 512MB of memory. He has already downloaded 287MB and will continue to download  $m$  more megabytes. Write and solve an inequality that shows how many more megabytes he can download.

9. Eleanor needs to read at least 97 pages of a book for homework. She has read 34 pages already. Write and solve an inequality that shows how many more pages  $p$  she must read.

**LESSON**  
**2-2**

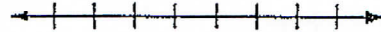
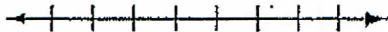
**Problem Solving**

*Solving Inequalities by Adding or Subtracting*

Write the correct answer.

1. Sumiko is allowed to watch no more than 10 hours of television each week. She has watched 4 hours of television already. Write and solve an inequality to show how many more hours of television Sumiko can watch.
2. A satellite will be released into an orbit of more than 400 miles above the Earth. The rocket carrying it is currently 255 miles above Earth. Write and solve an inequality to show how much higher the rocket must climb before it releases the satellite.

3. Wayne's homework is to solve at least 20 questions from his textbook. So far, he has completed 9 of them. Write, solve, and graph an inequality to show how many more problems Wayne must complete.
4. Felix wants to get at least one hour of exercise each day. Today, he has run for 40 minutes. Write, solve, and graph an inequality that shows how much longer Felix needs to exercise to reach his goal.



The high school has been raising money for charity and the class that raises the most will be awarded a party at the end of the year. The table below shows how much money each class has raised so far. Use this information to answer questions 5-7.

5. The school has a goal of raising at least \$3000. Which inequality shows how much more money  $m$  they need to raise to reach their goal?

- A  $m \geq 215$                       C  $m \leq 215$   
 B  $m < 215$                         D  $m > 2785$

Class	Amount Raised (\$)
Seniors	870
Juniors	650
Sophomores	675
First-Years	590

6. The juniors would like to raise more money than the seniors. The seniors have completed their fundraising for the year. Which expression shows how much more money  $j$  the juniors must raise to overtake the seniors?

- F  $j \leq 220$                       H  $j \geq 220$   
 G  $j < 220$                         J  $j > 220$

7. A local business has agreed to donate no more than half as much as the senior class raises. Which inequality shows how much money  $b$  the business will contribute?

- A  $\frac{1}{2}(870) \leq b$                       C  $\frac{1}{2}(870) \geq b$   
 B  $870 \leq \frac{1}{2}b$                         D  $870 \geq \frac{1}{2}b$

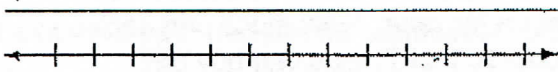
**LESSON**  
**2-3**

**Practice**

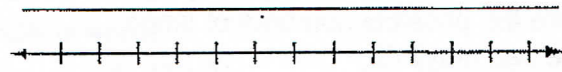
*Solving Inequalities by Multiplying or Dividing*

Solve each inequality and graph the solutions.

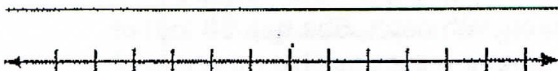
1.  $4a > 32$



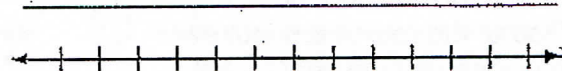
2.  $-7y < 21$



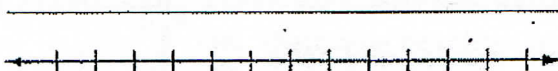
3.  $1.5n \leq -18$



4.  $-\frac{3}{8}c \geq 9$



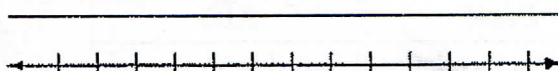
5.  $\frac{y}{5} > 4$



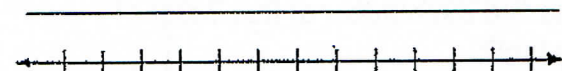
6.  $2s \leq -3$



7.  $-\frac{1}{3}b < -6$



8.  $\frac{z}{-8} \geq -0.25$



Write and solve an inequality for each problem.

9. Phil has a strip of wood trim that is 16 feet long. He needs 5-foot pieces to trim some windows. What are the possible numbers of pieces he can cut?

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10. A teacher buys a 128-ounce bottle of juice and serves it in 5-ounce cups. What are the possible numbers of cups she can fill?

\_\_\_\_\_

11. At an online bookstore, Kendra bought 4 copies of the same book for the members of her book club. She got free shipping because her total was at least \$50. What was the minimum price of each book?

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**LESSON**  
**2-3**

**Problem Solving**

**Solving Inequalities by Multiplying or Dividing**

Write and solve an inequality for each situation.

- Karin has \$3 to spend in the arcade. The game she likes costs 50¢ per play. What are the possible numbers of times that she can play?
- Tyrone has \$21 and wants to buy juice drinks for his soccer team. There are 15 players on his team. How much can each drink cost so that Tyrone can buy one drink for each person?

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- A swimming pool is 7 feet deep and is being filled at the rate of 2.5 feet per hour. How long can the pool be left unattended without the water overflowing?
- Megan is making quilts that require 11 feet of cloth each. She has 50 feet of cloth. What are the possible numbers of quilts that she can make?

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Alyssa, Reggie, and Cassie are meeting some friends at the movies and have stopped at the refreshment stand. The table below shows some of the items for sale and their prices. Use this information to answer questions 5–7.

Alyssa has \$7 and would like to buy fruit snacks for as many of her friends as possible. Which inequality below can be solved to find the number of fruit snacks  $f$  she can buy?

- A  $2f \leq 7$                       C  $7f \leq 2$   
 B  $2f < 7$                         D  $7f < 2$

- Reggie brought \$13 and is going to buy popcorn for the group. Which answer below shows the possible numbers of popcorns  $p$  Reggie can buy for his friends?

- F 0, 1, or 2                      H 0, 1, 2, 3, or 4  
 G 0, 1, 2, or 3                J 0, 1, 2, 3, 4, or 5

Menu Item	Price(\$)
Popcorn	3.50
Drink	3.00
Hot Dog	2.50
Nachos	2.50
Fruit Snack	2.00

- The movie theater donates 12% of its sales to charity. From Cassie's purchases, the theater will donate at least \$2.15. Which inequality below shows the amount of money  $m$  that Cassie spent at the refreshment stand?  
 A  $m \geq 17.92$                       C  $m \geq 25.80$   
 B  $m \leq 17.92$                       D  $m \leq 25.80$