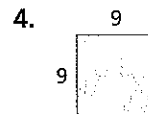
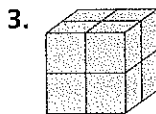
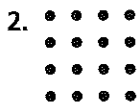


GUIDED PRACTICE

1. **Vocabulary** What does the *exponent* in the expression 5^6 tell you?

SEE EXAMPLE 1 Write the power represented by each geometric model.

p. 26



SEE EXAMPLE 2 Simplify each expression.

p. 27

5. 7^2

6. $(-2)^4$

7. $(-2)^5$

8. $-\left(\frac{1}{2}\right)^4$

SEE EXAMPLE 3 Write each number as a power of the given base.

p. 27

9. 81; base 9

10. 100,000; base 10

11. -64 ; base -4

12. 10; base 10

13. 81; base 3

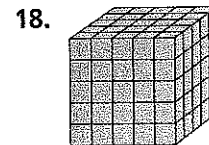
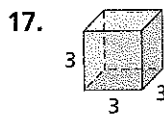
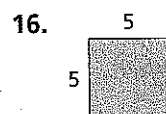
14. 36; base -6

SEE EXAMPLE 4 15. **Technology** Jan wants to predict the number of hits she will get on her Web page. Her Web page received 3 hits during the first week it was posted. If the number of hits triples every week, how many hits will the Web page receive during the 5th week?

p. 28

PRACTICE AND PROBLEM SOLVING

Write the power represented by each geometric model.



Simplify each expression.

19. 3^3

20. $(-4)^2$

21. -4^2

22. $\left(-\frac{3}{5}\right)^2$

Write each number as a power of the given base.

23. 49; base 7

24. 1000; base 10

25. -8 ; base -2

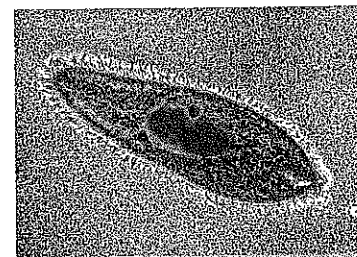
26. 1,000,000; base 10

27. 64; base 4

28. 343; base 7

29. **Biology** Protozoa are single-celled organisms. *Paramecium aurelia* is one type of protozoan. The number of *Paramecium aurelia* protozoa doubles every 1.25 days. There was one protozoan on a slide 5 days ago. How many protozoa are on the slide now?

30. **Write About It** A classmate says that any number raised to an even power is positive. Give examples to explain whether your classmate is correct.



Compare. Write $<$, $>$, or $=$.

31. 3^2 3^3

32. 5^2 2^5

33. 4^2 2^4

34. 1^9 1^4

35. -2^3 $(-2)^3$

36. -3^2 $(-3)^2$

37. 10^2 2^6

38. 2^2 4^1

Independent Practice

For Exercises	See Example
16–18	1
19–22	2
23–28	3
29	4

Extra Practice

Skills Practice p. 54

Application Practice p. 528

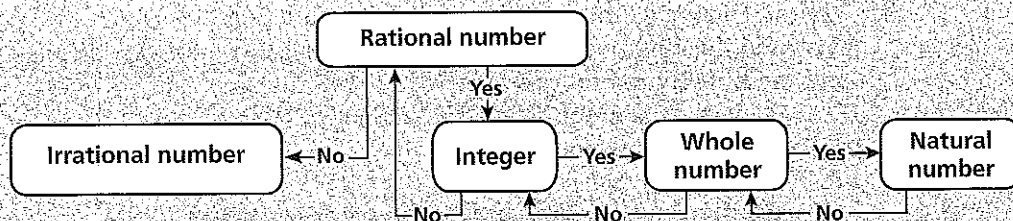
THINK AND DISCUSS

1. Write $\frac{2}{3}$ and $\frac{3}{5}$ as decimals. Identify what number classifications the two numbers share and how their classifications are different.

Know It!

Note

2. **GET ORGANIZED** Copy the graphic organizer and use the flowchart to classify each of the given numbers. Write each number in the box with the most specific classification that applies. $4, \sqrt{25}, 0, \frac{1}{3}, -15, -2.25, \frac{1}{4}, \sqrt{21}, 2^4, (-1)^2$



1-5

Exercises

go.hrw.com
 Homework Help Online
 KEYWORD: MA7 1-5
 Parent Resources Online
 KEYWORD: MA7 Parent

GUIDED PRACTICE

1. **Vocabulary** Give an example of an *integer* that is not a *whole number*.

SEE EXAMPLE 1 Find each square root.

p. 32

2. $\sqrt{64}$

3. $\sqrt{225}$

4. $-\sqrt{1}$

5. $\sqrt{169}$

SEE EXAMPLE 2

p. 33

6. A contractor is told that a potential client's kitchen floor is in the shape of a square. The area of the floor is 45 ft^2 . Find the side length of the floor to the nearest tenth.

SEE EXAMPLE 3

p. 34

Write all classifications that apply to each real number.

7. -27

8. $\frac{1}{6}$

9. $\sqrt{12}$

10. -6.8

PRACTICE AND PROBLEM SOLVING

Find each square root.

11. $\sqrt{121}$

12. $\sqrt{9}$

13. $-\sqrt{100}$

14. $\sqrt{400}$

15. Mr. and Mrs. Phillips are going to build a new home with a foundation that is in the shape of a square. The house will cover 222 square yards. Find the length of the side of the house to the nearest tenth of a yard.

Write all classifications that apply to each real number.

16. $\frac{5}{12}$

17. $\sqrt{49}$

18. -3

19. $\sqrt{18}$

Compare. Write $<$, $>$, or $=$.

20. $\sqrt{88}$ \square 9

21. 8 \square $\sqrt{63}$

22. 6 \square $\sqrt{40}$

23. $\sqrt{169}$ \square 13

Independent Practice

For Exercises See Example

11-14 1

15 2

16-19 3

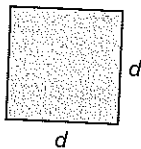
Extra Practice

Skills Practice p. 54

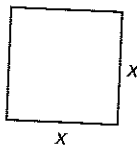
Application Practice p. S28

Geometry Give the side length of each square. Round your answer to the nearest whole number, if necessary.

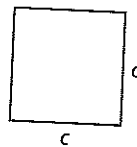
24. Area = 81 cm^2



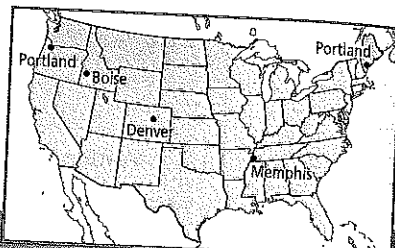
25. Area = 34 in^2



26. Area = 169 m^2



Travel During a cross-country road trip, Madeline recorded the distance between several major cities and the time it took to travel between those cities. Find Madeline's average speed for each leg of the trip and classify that number.



Madeline's Cross-Country Road Trip				
	Distance (mi)	Time (h)	Speed (mi/h)	Classification
27.	Portland, ME, to Memphis, TN	1485	33	<input type="checkbox"/>
28.	Memphis, TN, to Denver, CO	1046	27	<input type="checkbox"/>
29.	Denver, CO, to Boise, ID	831	24	<input type="checkbox"/>
30.	Boise, ID, to Portland, OR	424	9	<input type="checkbox"/>

Determine whether each statement is sometimes, always, or never true.

31. Natural numbers are whole numbers.
32. Negative numbers are integers.
33. Mixed numbers are rational numbers.
34. A positive number has two square roots.

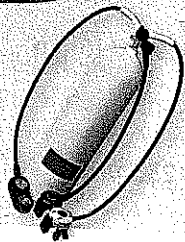
Tell whether whole numbers, integers, or rational numbers are the most reasonable to describe each. Explain your answer.

35. number of pets
36. body temperature
37. recipe measurements
38. money owed
39. distances
40. home runs

41. **Critical Thinking** Tell how you would classify the square roots of all positive integers that are not perfect squares.

42. **Write About It** Tell whether the square root of an integer is sometimes, always, or never an integer. Explain.

MULTI-STEP TEST PREP



43. This problem will prepare you for the Multi-Step Test Prep on page 38.

The equation $a^2 + b^2 = c^2$ relates the lengths of the sides of a right triangle. Sides a and b make the right angle of the triangle.

- a. What is the value of c^2 when $a = 5$ and $b = 12$? Determine the square root of c^2 to find the value of c .
- b. A diver is a horizontal distance of 50 feet from a boat and 120 feet beneath the surface of the water. What distance will the diver swim if he swims diagonally to the boat?

