✓ Vocabulary and Concept Check

1. **VOCABULARY** What is the greatest common factor (GCF) of two numbers?

2. **WRITING** Describe how to find the GCF of two numbers by using prime factorization.

3. **DIFFERENT WORDS, SAME QUESTION** Which is different? Find "both" answers.

> What is the greatest common factor of 24 and 32?

> What is the greatest common divisor of 24 and 32?

> What is the greatest prime factor of 24 and 32?

> What is the product of the common prime factors of 24 and 32?

Practice and Problem Solving

Use a Venn diagram to find the greatest common factor of the numbers.

4. 12, 30
5. 32, 54
6. 24, 108

Find the GCF of the numbers using lists of factors.

① 7. 6, 15
8. 14, 84
9. 45, 76

10. 39, 65
11. 51, 85
12. 40, 63

Find the GCF of the numbers using prime factorizations.

② 13. 45, 60
14. 27, 63
15. 36, 81

16. 72, 84
17. 61, 73
18. 189, 200

ERROR ANALYSIS Describe and correct the error in finding the GCF.

19.
> ✗
> $42 = 2 \cdot 3 \cdot 7$
> $154 = 2 \cdot 7 \cdot 11$
> The GCF is 7.

20.
> ✗
> $36 = 2^2 \cdot 3^2$
> $60 = 2^2 \cdot 3 \cdot 5$
> The GCF is $2 \cdot 3 = 6$.

21. **CLASSROOM** A teacher is making identical activity packets using 92 crayons and 23 sheets of paper. What is the greatest number of packets the teacher can make with no items left over?

22. **BALLOONS** You are making balloon arrangements for a birthday party. There are 16 white balloons and 24 red balloons. Each arrangement must be identical. What is the greatest number of arrangements you can make using every balloon?
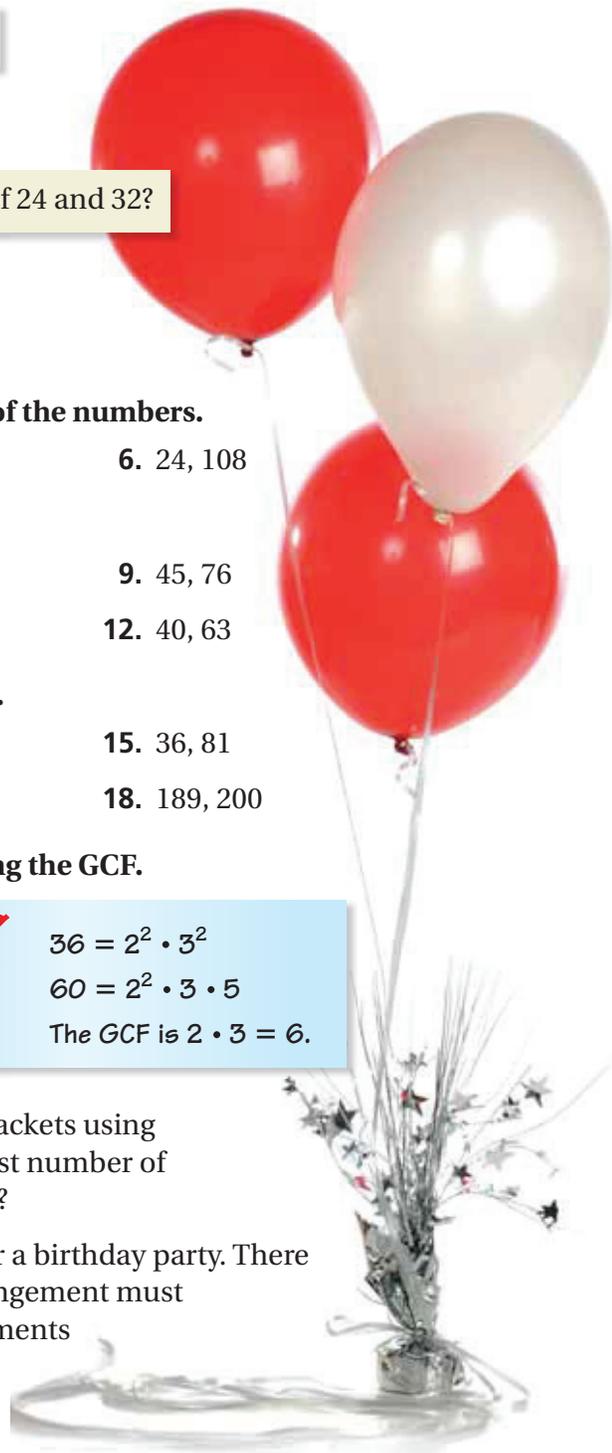
Find the GCF of the numbers.

④ **23.** 35, 56, 63   **24.** 30, 60, 78   **25.** 42, 70, 84

26. OPEN-ENDED Write a set of three numbers that have a GCF of 16. What procedure did you use to find your answer?

27. REASONING You need to find the GCF of 256 and 400. Would you rather list their factors or use their prime factorizations? Explain.

CRITICAL THINKING **Tell whether the statement is *always*, *sometimes*, or *never* true.**

28. The GCF of two even numbers is 2.

29. The GCF of two prime numbers is 1.

30. When one number is a multiple of another, the GCF of the numbers is the greater of the numbers.

31. BOUQUETS A florist is making identical bouquets using 72 red roses, 60 pink roses, and 48 yellow roses. What is the greatest number of bouquets that the florist can make if no roses are left over? How many of each color are in each bouquet?

32. VENN DIAGRAM Consider the numbers 252, 270, and 300.

    a. Create a Venn diagram using the prime factors of the numbers.

    b. Use the Venn diagram to find the GCF of 252, 270, and 300.

    c. What is the GCF of 252 and 270? 252 and 300? Explain how you found your answer.

33. FRUIT BASKETS You are making fruit baskets using 54 apples, 36 oranges, and 73 bananas.

    a. Explain why you cannot make identical fruit baskets without leftover fruit.

    b. What is the greatest number of identical fruit baskets you can make with the least amount of fruit left over? Explain how you found your answer.

34. **Problem Solving** Two rectangular, adjacent rooms share a wall. One-foot-by-one-foot tiles cover the floor of each room. Describe how the greatest possible length of the adjoining wall is related to the total number of tiles in each room. Draw a diagram that represents one possibility.

Room 1	Room 2

adjoining wall
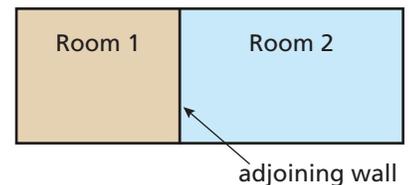
🖊️ *Fair Game Review* What you learned in previous grades & lessons

Tell which property is being illustrated. *(Skills Review Handbook)*

35. $13 + (29 + 7) = 13 + (7 + 29)$ **36.** $13 + (7 + 29) = (13 + 7) + 29$

37. $(6 \times 37) \times 5 = (37 \times 6) \times 5$ **38.** $(37 \times 6) \times 5 = 37 \times (6 \times 5)$

39. MULTIPLE CHOICE In what order should you perform the operations in the expression $4 \times 3 - 12 \div 2 + 5$? *(Section 1.3)*

    Ⓐ $\times, -, \div, +$ Ⓑ $\times, \div, -, +$ Ⓒ $\times, \div, +, -$ Ⓓ $\times, +, -, \div$