

# 3.2 Greatest Common Factor

Key

1. Name two common factors (other than 1) of the numbers 18 and 24.
2. Give an example of two composite numbers that are relatively prime.

Find the greatest common factor of the numbers.

3. 8, 24

8

4. 7, 35

7

5. 14, 21

7

6. 22, 55

11

7. 12, 42

6

8. 22, 64

2

9. 16, 36

4

10. 36, 90

18

11. 42, 98

14

Find the greatest common factor of the numbers. Then tell whether the numbers are relatively prime.

12. 27, 42

3

13. 24, 33

3

14. 22, 35 1 - relatively prime

15. 16, 39 1 - relatively prime

16. 26, 65

13

17. 54, 55 1 - relatively prime

Find the greatest common factor of the monomials.

18.  $3x, 27x$

$3x$

19.  $44n, 28$

4

20.  $16y, 48y^3$

$16y$

21.  $14r^2, 21r^3$

$7r^2$

22.  $9s^3, 27s^4$

$9s^3$

23.  $33z^2, 44z^5$

$11z^2$

Tell whether the numbers are relatively prime.

24. 228, 418

no

25. 243, 256

yes

26. 17, 374

no

27. A school has 30 students on its Academic Decathlon team. To practice for the oral Super Quiz portion of the Academic Decathlon, they want to divide into smaller practice teams with equal numbers of students from each grade. There are a total of 6 freshman, 12 sophomores, 4 juniors, and 8 seniors on the team. What is the greatest number of practice teams possible?

a. Write the prime factorization of the number of students in each grade.

$$6 = 2 \cdot 3 = 2 \cdot 3$$

$$12 = 2 \cdot 2 \cdot 3 = 2^2 \cdot 3$$

b. Find the common prime factors of the numbers. = 2

$$4 = 2 \cdot 2 = 2^2$$

$$8 = 2 \cdot 2 \cdot 2 = 2^3$$

c. What is the greatest number of practice teams possible? 2

28. You work at a fruit stand. You are putting fruit baskets together. You have 30 oranges, 24 bananas, 42 apples, and 12 peaches. What is the greatest number of identical fruit baskets you can make if you use all of the fruit? 6