www.pearsonsuccessnet.com or CD

Is 3 or 8 a prime number? Explain. [3 is prime; it has exactly two factors; 8 has more than two factors.]

Prime or Composite?

Is 27 a prime number or a composite number? You can use divisibility rules to help you decide. Since 27 is an odd number it is not divisible by 2. Since the sum of the digits is 2 + 7 = 9, then 27 is

divisible by 3. So, 27 also has factors of 3 and 9. So, 27 is composite.

Prevent Misconceptions

Students might wonder whether 1 is a prime number because they are not sure whether it has one or two factors. Draw a square on the board to represent an array for 1. Explain that all numbers have 1 as a factor. Then explain that the other factor for 1 is itself. So 1 is neither prime nor composite.

Is 11 prime or composite?

Since 11 is an odd number, it is NOT divisible by 2.

It is also NOT divisible by 3, 4, 5, 6, 7, 8, 9, or 10.

So, 11 is prime.

Guided Practice

If students have trouble making factor trees,

numbers are prime or composite.

Exercise 8

Error Intervention

 $28 = 4 \times 7$

 $28 = 2 \times 2 \times 7$

written in numerical order.

Reteaching Set H on p. 119.

Remind students to use divisibility rules to help them decide if

then suggest an alternative that is a string of equivalent equations:

The factors in the last equation must all be prime numbers. This is the

prime factorization of the number. Prime factorizations are typically

Reteaching For another example and more practice, assign

What other numbers less than 20 are prime? [5, 7, 13, 17, 19]

Formative

Prime or Composite?

Is 27 a prime number or a composite number?

You can use divisibility rules to help you decide.

Since 27 is an odd number it is not divisible by 2.

Since the sum of the digits is 2 + 7 = 9, then 27 is divisible by 3. So, 27 also has factors of 3 and 9.

So, 27 is composite

Is 11 prime or composite?

Since 11 is an odd number, it is NOT divisible by 2.

It is also NOT divisible by 3, 4, 5, 6, 7, 8, 9, or 10.

So, 11 is prime.

 No. A factor tree shows the prime factorization of a number, so the last row has to be prime factors.

Guided Practice*

Composite

Prime

6. 287 Composite

4. 37

Do you know HOW?

For 1 through 6, write whether the number is prime or composite.

Prime
3. 22

22 Composite

Do you UNDERSTAND?

7. The prime factorization of a number is $2 \times 3 \times 3 \times 5 \times 7$. What is the number? 630

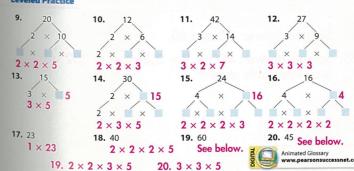
 When beginning a factor tree for a composite number, does it matter which factor pair you start with? Explain.
 See above.

Independent Practice

In 9 through 20, use a factor tree to find the prime factorization of each number.

Think of the basic multiplication facts to use for the factor pairs.

Leveled Practice



*For another example, see Set H on page 119.

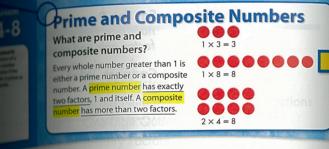
sson 4-8

3 Independent Practice

Remind students to break down numbers into their factors until they get only prime numbers. Students who have trouble breaking down numbers should work on Exercises 9–16. Students who can construct their own factor tree should work on Exercises 17–20. These students could be challenged to write answers in exponential form. Example: $2 \times 2 \times 2 \times 2 \times 2 = 2^5$

Early Finishers Have students show that 5 is prime and that 6 is composite by making arrays with counters.

See Extensions on page 119E.



How can you write a composite number as a product of prime factors? The standard of prime factors is called the prime factorization of a number. The standard factor is a diagram that shows the prime factorization of a number. One Way Another Way You can use a different factor pair for 24. You can use a different factor pair for 24. Another way You can use a different factor pair for 24. Continue until all "branches" end in prime numbers. Another way You can use a different factor pair for 24. The standard factor that is not prime as a second of the tree contains all another way. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor is a different factor pair for 24. The standard factor pair factor is a different factor is a different factor pair factor is a different factor pair factor is a different factor pair factor is a different factor is a different factor pair factor is a different factor is a different factor is a differen