

## Lesson 16: Even and Odd Numbers

### Classwork

#### Opening Exercise

What is an even number?

List some examples of even numbers.

What is an odd number?

List some examples of odd numbers.

What happens when we add two even numbers? Will we always get an even number?

**Exercises 1–3**

1. Why is the sum of two even numbers even?
  - a. Think of the problem  $12 + 14$ . Draw dots to represent each number.
  
  
  
  
  
  
  
  
  
  
  - b. Circle pairs of dots to determine if any of the dots are left over.
  
  
  
  
  
  
  
  
  
  
  - c. Will this be true every time two even numbers are added together? Why or why not?
  
2. Why is the sum of two odd numbers even?
  - a. Think of the problem  $11 + 15$ . Draw dots to represent each number.
  
  
  
  
  
  
  
  
  
  
  - b. Circle pairs of dots to determine if any of the dots are left over.
  
  
  
  
  
  
  
  
  
  
  - c. Will this be true every time two odd numbers are added together? Why or why not?

3. Why is the sum of an even number and an odd number odd?
- Think of the problem  $14 + 11$ . Draw dots to represent each number.
  - Circle pairs of dots to determine if any of the dots are left over.
  - Will this be true every time an even number and an odd number are added together? Why or why not?
  - What if the first addend was odd and the second was even? Would the sum still be odd? Why or why not? For example, if we had  $11 + 14$ , would the sum be odd?

Let's sum it up:

- 
- 
-

**Exploratory Challenge/Exercises 4–6**

4. The product of two even numbers is even.

5. The product of two odd numbers is odd.

6. The product of an even number and an odd number is even.

**Lesson Summary**

Adding:

- The sum of two even numbers is even.
- The sum of two odd numbers is odd.
- The sum of an even number and an odd number is odd.

Multiplying:

- The product of two even numbers is even.
- The product of two odd numbers is odd.
- The product of an even number and an odd number is even.

**Problem Set**

Without solving, tell whether each sum or product is even or odd. Explain your reasoning.

1.  $346 + 721$
2.  $4,690 \times 141$
3.  $1,462,891 \times 745,629$
4.  $425,922 + 32,481,064$
5.  $32 + 45 + 67 + 91 + 34 + 56$