

## Lesson 17: Divisibility Tests for 3 and 9

### Classwork

#### Opening Exercise

Below is a list of 10 numbers. Place each number in the circle(s) that is a factor of the number. You will place some numbers in more than one circle. For example, if 32 were on the list, you would place it in the circles with 2, 4, and 8 because they are all factors of 32.

24; 36; 80; 115; 214; 360; 975; 4,678; 29,785; 414,940

The exercise consists of five large circles arranged in two rows. The top row has three circles with numbers 2, 4, and 5. The bottom row has two circles with numbers 8 and 10. Each number is enclosed in a small rectangular box at the top of its respective circle.

### Discussion

- Divisibility rule for 2:
- Divisibility rule for 4:
- Divisibility rule for 5:
- Divisibility rule for 8:
- Divisibility rule for 10:
- Decimal numbers with fraction parts do not follow the divisibility tests.
- Divisibility rule for 3:
- Divisibility rule for 9:

### Example 1

This example will show you how to apply the two new divisibility rules we just discussed.

Is 378 divisible by 3 or 9? Why or why not?

- a. What are the three digits in the number 378?
  
  
  
  
  
  
  
  
  
- b. What is the sum of the three digits?
  
  
  
  
  
  
  
  
  
- c. Is 18 divisible by 9?
  
  
  
  
  
  
  
  
  
- d. Is the entire number 378 divisible by 9? Why or why not?

- e. Is the number 378 divisible by 3? Why or why not?

**Example 2**

Is 3,822 divisible by 3 or 9? Why or why not?

**Exercises 1–5**

Circle ALL the numbers that are factors of the given number. Complete any necessary work in the space provided.

1. Is 2,838 divisible by

3

9

4

Explain your reasoning for your choices.

2. Is 34,515 divisible by

3

9

5

Explain your reasoning for your choices.

3. Is 10,534,341 divisible by

3

9

2

Explain your reasoning for your choices.

4. Is 4,320 divisible by

3

9

10

Explain your reasoning for your choices.

5. Is 6,240 divisible by

3

9

8

Explain your reasoning for your choices.