Lesson 17: Divisibility Tests for 3 and 9

Classwork

Opening Exercise

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

; ; ; ; ; ; ; ; ;

**10**

**8**

**5**

**4**

**2**

Discussion

* Divisibility rule for :
* Divisibility rule for :
* Divisibility rule for :
* Divisibility rule for :
* Divisibility rule for :
* Decimal numbers with fraction parts do not follow the divisibility tests.
* Divisibility rule for :
* Divisibility rule for :

**Example 1**

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

Is divisible by or ? Why or why not?

* 1. What are the three digits in the number ?
  2. What is the sum of the three digits?
  3. Is divisible by ?
  4. Is the entire number divisible by ? Why or why not?
  5. Is the number divisible by ? Why or why not?

**Example 2**

Is divisible by or ? 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 divisible by

Explain your reasoning for your choices.

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Explain your reasoning for your choices.

Lesson Summary

To determine if a number is divisible by or :

* Calculate the sum of the digits.
* If the sum of the digits is divisible by , the entire number is divisible by .
* If the sum of the digits is divisible by , the entire number is divisible by .

Note: If a number is divisible by , the number is also divisible by .

Problem Set

1. Is divisible by both and ? Why or why not?
2. Circle all the factors of from the list below.
3. Circle all the factors of from the list below.
4. Write a digit number that is divisible by both and . Explain how you know this number is divisible by and .

1. Write a digit number that is divisible by both and . Explain how you know this number is divisible by and .