Divisibility Rules and Factors

One integer is **DIVISIBLE** by another if the remainder is **0** when you divide. You can test for divisibility using mental math.

Example – because **18 ÷ 3 = 6, 18** is divisible by **3.**

1 – Using divisibility tests

There are rules that govern which numbers are evenly divisible by with other numbers and they can be used as a shortcut divisibility test.

Key Concepts   Divisibility Rules for 2, 5, and 10

An integer is divisible by
- 2 if it ends in 0, 2, 4, 6, or 8.
- 5 if it ends in 0 or 5.
- 10 if it ends in 0.

Even numbers end in 0, 2, 4, 6, or 8 and are divisible by 2.
Odd numbers end in 1, 3, 5, 7, or 9 and are not divisible by 2.

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Try applying this set of rules to the following examples:

1 EXAMPLE Is the first number divisible by the second?

a. 1,028 by 2

b. 572 by 5

c. 275 by 10

Here are the rules for 3 and 9. See if you can apply them to the examples below...

Key Concepts   Divisibility Rules for 3 and 9

An integer is divisible by
- 3 if the sum of its digits is divisible by 3.
- 9 if the sum of its digits is divisible by 9.

2 EXAMPLE   Is the first number divisible by the second?

a. 1,028 by 3

WHAT'S YOUR ANSWER

b. 522 by 9

WHAT'S YOUR ANSWER

2 – Finding factors

One integer is a FACTOR of another nonzero integer if it divides that integer with a remainder of zero. In other words, the numbers that go into a larger number evenly are its factors.

How can you use this information to solve the problem below?

3 EXAMPLE Ms. Washington's class is having a class photo taken. Each row must have the same number of students. There are 35 students in the class. How can Ms. Washington arrange the students in rows if there must be at least 5 students, but no more than 10 students, in each row?

WHAT'S YOUR ANSWER

HINT