

OBJECTIVES:

Use the divisibility tests to determine whether a number is divisible by 2, 3, 4, 5, 6, 12, 8, 9, or 12. (Yes “memorize” them.)

1. A number B is a **multiple** of A if and only if A is a factor of B.

Fill in the following blanks with “factor(s)” or “multiple(s)”

- A. 6 is a _____ of 12.
B. 50 is a _____ of 5.
C. 4 and 5 are _____ of 20.
D. 9 and 12 are _____ of 3.

2. Divisibility Rules: First the easy ones!!

- A. A whole number is divisible by 2 if the number is even (i.e. ones digit is even).
B. A whole number is divisible by 5 if it ends in 5 or 0 (i.e. ones digit is 5 or 0).
C. A whole number is divisible by 10 if it ends in 0 (i.e. ones digit is 0).

3. Divisibility Rules: Some that are not so obvious.

- A. A whole number is divisible by 3, if the sum of the digits is divisible by 3.

Examples: Determine whether the following numbers are divisible by 3.

i. 53

ii. 7,533

iii. 8,197

iv. 345,678

Why can't you just check the last digit to see if a number is divisible by 3?

- B. A whole number is divisible by 4 if the last 2 digits represent a number divisible by 4.

Examples: Determine whether the following numbers are divisible by 4.

i. 98

ii. 184

iii. 345,964

iv. 55,678

- C. A whole number is divisible by 6 if and only if the number is divisible by both 2 and 3.

Examples: Determine whether the following numbers are divisible by 6.

i. 98

ii. 228

iii. 345,678

iv. 505

- D. A whole number is divisible by 8 if the last three digits represent a number divisible by 8.

Why can't we say if a number is divisible by 2 and 4, then it is divisible by 8?

Examples: Determine whether the following numbers are divisible by 8.

i. 64

ii. 264

iii. 3564

iv. 73,464

E. A whole number is divisible by 9 if and only if the sum of digits is divisible by 9.

Examples: Determine whether the following numbers are divisible by 9.

i. 72

ii. 972

iii. 453

iv. 4536

4. Fill in the missing digit(s) so that each number is divisible by the indicated number or numbers. Determine all possible answers.

A. 23, 5 ____ 4 (by 4 and 6)

B. 546, 7 ____ ____ (by 2 and 5 but not by 3)

C. 124, 5 ____ ____ (by 4 and 9)