

## Division and Divisibility

Division problems can be written in three different ways. For example, 36 divided by 6 can be written in any of the following formats:

$$36 \div 6$$

$$6\sqrt{36}$$

$$\frac{36}{6}$$

All three of problems written above mean the same thing.

When we say that a number is divisible by another number, we mean that the number can be divided by another number without leaving a remainder. For example, 12 is divisible by 4 because  $12 \div 4 = 3$ . 12 is not divisible by 5 because  $12 \div 5$  equals 2 with a remainder of 2.

If you want to know if a particular number is divisible by another number, you can always divide the number and see if you have a remainder or not. There are also a few simple rules that can help you determine if numbers are divisible by certain other numbers without having to perform the actual division problem.

### Rules for Divisibility

#### **A number is divisible:**

- By 2, if it is an even number.
- By 5, if the number has a 0 or a 5 in the ones' place.
- By 10, if the number has a 0 in the ones' place.
- By 3, if the sum of the digits is divisible by 3.
- By 9, if the sum of the digits is divisible by 9.

#### **For example:**

46	Divisible by 2?	46 is an even number, so it is divisible by 2.
435	Divisible by 5?	435 has a 5 in the ones' place, so it is divisible by 5.
84	Divisible by 10?	84 has a 4 in the ones' place, so it is not divisible by 10.
342	Divisible by 3?	The sum of the digits (3+4+2) is 9, and 9 is divisible by 3.
263	Divisible by 9?	The sum of the digits (2+6+3) is 11, and 11 is not divisible by 9, so 263 is not divisible by 9.

Using the rules for divisibility can save you time when trying to determine if a number is divisible by a certain other number, because you will not always need to perform the full division problem to see if there is a remainder in order to find your answer.

Name \_\_\_\_\_

Date \_\_\_\_\_

## Division and Divisibility Questions

**Place a “yes” in the blank if the number is divisible by 2 and a “no” if it is not:**

\_\_\_\_\_ 1. 941

\_\_\_\_\_ 2. 474

\_\_\_\_\_ 3. 906

**Place a “yes” in the blank if the number is divisible by 5 and a “no” if it is not:**

\_\_\_\_\_ 4. 740

\_\_\_\_\_ 5. 834

\_\_\_\_\_ 6. 615

**Place a “yes” in the blank if the number is divisible by 3 and a “no” if it is not:**

\_\_\_\_\_ 7. 615

\_\_\_\_\_ 8. 412

\_\_\_\_\_ 9. 721

**Place a “yes” in the blank if the number is divisible by 9 and a “no” if it is not:**

\_\_\_\_\_ 10. 711

\_\_\_\_\_ 11. 439

\_\_\_\_\_ 12. 172

**Place a “yes” in the blank if the number is divisible by 10 and a “no” if it is not:**

\_\_\_\_\_ 13. 525

\_\_\_\_\_ 14. 430

\_\_\_\_\_ 15. 740

Name \_\_\_\_\_

Date \_\_\_\_\_

## Division and Divisibility Answers

**Place a “yes” in the blank if the number is divisible by 2 and a “no” if it is not:**

\_\_\_no\_\_\_ 1. 941

\_\_\_yes\_\_\_ 2. 474

\_\_\_yes\_\_\_ 3. 906

**Place a “yes” in the blank if the number is divisible by 5 and a “no” if it is not:**

\_\_\_yes\_\_\_ 4. 740

\_\_\_no\_\_\_ 5. 834

\_\_\_yes\_\_\_ 6. 615

**Place a “yes” in the blank if the number is divisible by 3 and a “no” if it is not:**

\_\_\_yes\_\_\_ 7. 615

\_\_\_no\_\_\_ 8. 412

\_\_\_no\_\_\_ 9. 721

**Place a “yes” in the blank if the number is divisible by 9 and a “no” if it is not:**

\_\_\_yes\_\_\_ 10. 711

\_\_\_no\_\_\_ 11. 439

\_\_\_no\_\_\_ 12. 172

**Place a “yes” in the blank if the number is divisible by 10 and a “no” if it is not:**

\_\_\_no\_\_\_ 13. 525

\_\_\_yes\_\_\_ 14. 430

\_\_\_yes\_\_\_ 15. 740