

## Dividing Whole Numbers; Square Roots; Solving Equations

Natural numbers: \_\_\_\_\_

Whole numbers: \_\_\_\_\_

### How to divide

Here's a division sentence:  $20 \div 5 = 4$

Other ways to write the same division sentence:

#### Ex 1.

Divide:  $6408 \div 7$

#### Ex 2.

Divide:  $42,017 \div 41$

## When to divide

What does division mean? In math, it means **separating into equal parts**.



Division problems come in two main flavors.

1. If a deck of 52 cards are divided between 13 players, how many cards does each player get?  
(Imagine dealing out the cards, and each player would end up with 4 cards.)

2. How many bags of 5 oranges could be made from a box of 40 oranges?  
(Imagine making each bag of 5 oranges until you run out of oranges.)



### Ex 3.

How many 15-cent stamps can you buy with \$10?

(Imagine buying each 15-cent stamp until you run out of money.)

### Ex 4.

Suppose Roger's annual salary is \$42552, and he gets paid monthly. What is his monthly salary?

(Imagine "dealing out" the \$42552 into each of the 12 months.)

**Note:** We can check our answers using \_\_\_\_\_ (which is the "inverse" of division).  
That is, take your answer and multiply it by the \_\_\_\_\_. Then add the \_\_\_\_\_.

**Some things to know about division**

1.  $20 \div 5 \neq 5 \div 20$  (that is, division is **not** \_\_\_\_\_)
2.  $(32 \div 8) \div 2 \neq 32 \div (8 \div 2)$  (that is, division is **not** \_\_\_\_\_)
3.  $n \div 1 = \underline{\hspace{2cm}}$  (here  $n$  is any number)
4.  $0 \div n = \underline{\hspace{2cm}}$

5.  $n \div 0$  is \_\_\_\_\_ (here  $n \neq 0$ )

6.  $0 \div 0$  is \_\_\_\_\_

7.  $n \div n = \underline{\hspace{2cm}}$  (here  $n \neq 0$ )

**Divisibility rules**

When is a number divisible by 2? \_\_\_\_\_

When is a number divisible by 3? \_\_\_\_\_

When is a number divisible by 5? \_\_\_\_\_

**Ex 5.**

Circle the numbers that are divisible by 2: 30 3894 84371 6809 58390 457489205

**Ex 6.**

Now circle the numbers that are divisible by 3: 30 3894 84371 6809 58390 457489205

**Ex 7.**

Now circle the numbers that are divisible by 5: 30 3894 84371 6809 58390 457489205

## Solving equations

Sometimes it is helpful to write unknown quantities as variables, like  $x$ ,  $n$ ,  $y$ , etc.

**Ex 8.**

Solve.

$$6 \cdot x = 54$$

**Ex 9.**

Solve.

$$n \cdot 18 = 0$$

**Ex 10.**

The area of a rectangular room is 150 square feet, and the length of one side is 15 feet.

What is the width of the room?