Name: _____ **DIVISON**

We are going to divide 24 by 6 using two different methods. The two methods are equivalent. They are just different ways of looking at the division problem 24 ÷ 6.

1. First, take 24 cubes and put them into ***groups*** of **6 cubes** *each*.

   How many *groups* do you have? _____ 24 ÷ 6 = _____

   How many *cubes in each group*? _____

   Write the total number of cubes as a multiplication expression that looks *like this*:

*(number of **groups**) x (number of **cubes in a group**) = **total** number of **cubes**.*

_____ x _____ = _____

2. Now take another 24 cubes and put them into **6 groups** so that each group has the same number of cubes.

   How many *groups* are there? _____

   How many *cubes in each group*? _____ 24 ÷ 6 = _____

   Write the total number of cubes as a multiplication expression that looks *like this*:

*(number of **groups**) x (number of **cubes in a group**) = **total** number of **cubes**.*

_____ x _____ = _____

3. The '*total number of cubes'* in each of your multiplication problems should be the same.

   The first time you divided up the cubes, you had _____ groups, each with _____ cubes.

   The second time, you had _____ groups, each with _____ cubes.

Which property of our number system tells you that these two expressions must have the same value?

_____

Name: _____ **DIVISON**

4. Take **20 cubes** and arrange them into as many **groups** as you can with *exactly* **6 cubes** in each group.

   How many **groups** can you make? _____

   How many **cubes in each group**? _____

   How many **total cubes** did you use? _____ x _____ = _____

   How many ***left-over*** **cubes** do you have? _____

5. Now take **20 cubes** and divide them *fairly* into **6 groups** so that each group has *exactly* the same number of cubes.

   How many **cubes in each group**? _____

   How many **groups** are there? _____

   How many **total cubes** did you use? _____ x _____ = _____

   How many ***left-over*** **cubes** do you have? _____

6. In each of the two problems above did you have the same number of cubes left-over? _____ In each, did you use the same total number of cubes to make your piles? _____

7. The two methods you used to divide up the 20 cubes are *equivalent*. Each is a way of dividing 20 by 6. The left-over cubes are called the **remainder**. **20 ÷ 6 = 3 with a remainder of 2**.

You can think of 20 ÷ 6 in either of these ways (*6 groups* **or** *groups of 6*).

You can also think of 20 ÷ 6 as finding the greatest whole number that you can multiply by 6 so that the product (answer) is as close as possible to—*but not greater than*—20.

That number is **3**. The **remainder** (left-over) is then the difference between 20 and (6 x 3). **R** (remainder) = 20 – (6 x 3) = 20 – 18 = **2**.

We write **20 ÷ 6 = 3 R2** (20 divided by 6 equals 3 with a remainder of 2.)