Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_

Division of Integers

Throughout your school career, you have studied numbers and the facts of numbers when they are added, subtracted, multiplied, and divided. The past week, we have studied what happens when we multiply and in the last unit we studied what happens when we add and subtract. The next two days, we are going to study what happens when we divide rational numbers. We will start off by studying rational numbers with the same sign.

This lesson is divided into two parts: Integer division and fraction/decimal division. The rules stay the same, but the answers are not so neat and clean in the second part. Let’s get started!

Division Rule:

* **If the Top and Bottom have the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ then the**

**quotient (answer) is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

* **When dividing numbers that have the same sign, the answer is always \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!**

Integers

Remember with division, we are trying to see how many times a particular number fits into another. Grouping numbers is one strategy to use to find an answer. This is the first strategy we will try.

Example: -18 ÷ -6 = \_\_\_\_\_\_\_\_\_\_\_

Step 1: Make tallies to represent the first number ||||||||||||||||||

Step 2: Circle groups of the second number. ||||||||||||||||||

Step 3: Count the number of groups and that is your answer. 3

Using this strategy, find the answer. Remember, it does not matter if both numbers are negative, the answer will always be positive so this strategy holds true.

|  |  |
| --- | --- |
| 1. -24 ÷ -12 = \_\_\_\_\_\_\_\_\_
 | 1. 35 ÷ 7 = \_\_\_\_\_\_\_
 |

NO CALCULATOR!!!!

|  |  |  |  |
| --- | --- | --- | --- |
| 1.

121 ÷ 11 = \_\_\_\_\_\_ | 1.

-27 ÷ 3 = \_\_\_\_\_  | 1.

36 ÷ -6 = \_\_\_\_\_\_ | 1.

-81 ÷ -9 = \_\_\_\_\_\_ |
| 1.

-63 ÷ -9 = \_\_\_\_\_ | 1.

56 ÷ 7 = \_\_\_\_\_ | 1.

-77 ÷ -11 = \_\_\_\_\_ | 1.

-42 ÷ 6 = \_\_\_\_\_\_ |

Division of Fractions and Decimals

Some of the numbers we run across in division problems are not always whole numbers. The second strategy of whole number division does work for these types of problems. The first strategy that has to be taught for fractions is the strategy involving reciprocals. Reciprocals are the multiplicative inverse of the fraction. Once you have found the reciprocal, **you multiply those two fractions**.

**Bottom line: Reciprocals are taking the original fraction and flipping the numbers- top on bottom, bottom on top.**

Examples of Reciprocals:

 $\frac{1}{2}$’s reciprocal is $\frac{2}{1}$. -$ \frac{3}{8}$’s reciprocal is -$ \frac{8}{3}$.

**\*\*DO NOT LOSE THE NEGATIVE SIGN IF THERE IS ONE!**

Using the idea of reciprocals, solve the following division problems. Reduce answers if possible. Remember, if the signs are the same then the answer is always positive!

|  |  |
| --- | --- |
| 1. $\frac{3}{4}$ ÷ $\frac{2}{5}$ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_
 | 1. - $\frac{2}{3}$ ÷ - $\frac{7}{11}$ = \_\_\_\_\_\_\_\_\_\_\_\_\_
 |
| 1. $\frac{9}{13}$ ÷ $\frac{1}{5}$ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_
 | 1. $\frac{11}{12}$ ÷ $\frac{1}{2}$ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |

**Here's how you divide one decimal by another: Suppose you want to divide 4.5 by 1.8
First, you write your problem as you normally would:**

**

Next, you move the decimals in both the numbers to the right the same number of times until the divisor is a whole number.**

**

The decimal point in your answer will be lined up with the one in the number you are dividing into. Now, you do your division:**

**
Next, if you have a remainder, bring down a zero from the number being divided and continue:**

**TRY THESE:**

|  |  |
| --- | --- |
| Macintosh HD:private:var:folders:25:wqy9_0hd2qq6tdfthnwylklw8qkzs5:T:TemporaryItems:FD16-5.GIF | Macintosh HD:private:var:folders:25:wqy9_0hd2qq6tdfthnwylklw8qkzs5:T:TemporaryItems:FD16-6.GIF |