**Lesson 22 Notes: Division of Rational Numbers**

**What is a Reciprocal?**

Two numbers whose product is 1 are called reciprocals of each other.

Two numbers whose product is 1 are called reciprocals of each other. For example, and are reciprocals of each other.

Because

**Answer Key**

**Example A:** Find the reciprocal of  reciprocal

**Example B:** Find the reciprocal of  reciprocal 8

**Example C:** Find the reciprocal of  reciprocal

**Example D:** Find the reciprocal of  reciprocal

KEEP CHANGE FLIP

Invert and Multiply!

Convert mixed numbers to improper fractions first!

Multiply the first fraction by the reciprocal of the second fraction.

**Division of Rational Numbers**

The “rule” for dividing rational numbers:

**Example:** Find the quotient 

**Directions:** Find the quotient of each of the examples below. Show work. Reduce all answers. Write answer as improper fraction AND mixed number

**Example A:**  ** = \_\_\_\_\_\_

**Example B:**  ** = \_\_\_\_\_\_

**Example C:**  **= \_\_\_\_\_\_

**Example D:**  **= \_\_\_\_\_\_

**Example E:** ** = \_\_\_\_\_\_

**Number Properties for Rational Numbers**

Let’s take a look at Number Properties for Rational Numbers – Fractions!

1. Closure for Addition of Fractions

Add two fractions, and the answer will be a fraction

1. Closure for Multiplication of Fractions

Multiply two fractions, and the answer will be a fraction

1. Identity for Addition of Fractions

Add 0 to a fraction, and the answer will be that “identical” fraction

1. Identity for Multiplication of Fractions

Multiply 1 to a fraction, and the answer will be that “identical” fraction

1. Commutative Property for Addition of Fractions

For rational numbers A and B……..A + B = B + A

1. Associative Property for Addition of Fractions

For rational numbers A, B, and C……..(A+B)+C = A+(B+C)

1. Commutative Property for Multiplication of Fractions

For rational numbers A and B……..A x B = B x A

1. Associative Property for Multiplication of Fractions

For rational numbers A, B, and C……..(AxB)xC = Ax(BxC)

1. Distributive Property of Multiplication over Addition

For rational numbers A, B, and C……..A(B+C) = AB+AC

10. Inverse Property for Addition of Fractions

For rational number A, there is an inverse (opposite) B such that A+B=0

11. Inverse for Multiplication of Fractions

For rational number A, there is an inverse (reciprocal) B such that AxB=1