

CALCULATING WITH FRACTIONS

PRAXIS FLASHCARD #53

ADDITION OF FRACTIONS & MIXED NUMBERS

To **add fractions & mixed numbers**:

1. Write the two fractions/mixed numbers vertically above each other (lining up place value)
 2. Change the fractions to a common denominator.
 3. Add the numerators only.
 4. Put that sum over the common denominator.
 5. Simplify the answer.
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PRAXIS FLASHCARD #54

SUBTRACTION OF FRACTIONS & MIXED NUMBERS

To **subtract fractions & mixed numbers**:

1. Write the two fractions/mixed numbers vertically above each other (lining up place value)
 2. Change the fractions to a common denominator.
 3. Subtract the numerators only (careful to regroup **one whole** ($2/2$, $3/3$, $4/4$, etc.) if you need to borrow).
 4. Put that difference over the common denominator.
 5. Simplify the answer.
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PRAXIS FLASHCARD #50

MULTIPLYING FRACTIONS & MIXED NUMBERS

Change any mixed numbers to improper fractions. Change any whole numbers to improper fractions with a "1" on the denominator. Write the two fractions to be multiplied horizontally beside each other. Expand each numerator and each denominator into a prime factorization. "Cancel" any ones such as $3/3$ or $5/5$. Multiply what is left straight across:

$$2\frac{1}{2} \times 6 = \frac{5}{2} \times \frac{6}{1} = \frac{5 \times \cancel{2} \times 3}{\cancel{2} \times 1} = \frac{15}{1} = 15$$

PRAXIS FLASHCARD #138

RECIPROCAL

A **reciprocal** is a fraction where the numerator and denominator have been switched. Multiplying any fraction by its reciprocal results in an answer of 1. As such, a reciprocal is called a multiplicative inverse.

NOTE: Since there is no rule on how to divide fractions, but because multiplication is the inverse of division and a reciprocal is the inverse of a fraction, you can divide fractions by multiplying by the reciprocal of the divisor. Hence, the inverse of an inverse results in the same answer as if you had divided.

PRAXIS FLASHCARD #51

DIVISION OF FRACTIONS & MIXED NUMBERS

Change any mixed numbers to improper fractions. Change any whole numbers to improper fractions with a "1" on the denominator. Write the two fractions horizontally beside each other. Write the reciprocal of the divisor (flip the second fraction upside down) and change the operation to multiplication.* Expand each numerator and each denominator into a prime factorization. "Cancel" any ones such as $3/3$ or $5/5$. Multiply what is left straight across.

* A reciprocal is the **inverse** of a fraction. Multiplication is the **inverse** of division. The **inverse** of an **inverse** is the same as the original problem. As such, multiplication of a reciprocal is the same as dividing by the original divisor.
