PRIME FACTORIZATION

- Prime Factorization – to determine what the prime factors of a number are. Finding which prime numbers multiply together to make the original number.
  - i. To determine the prime factors of a number, we divide the number by the prime numbers, i.e. 12 = 2 x 2 x 3

- LCM (Least Common Multiple) – we use the LCM to add and subtract fractions
  - i. Determine the prime factors of each number
  - ii. Use the prime factors of each number the most times that they occur
  - iii. i.e. LCM of 18 & 40
  - iv. 18 = 2 x 3 x 3
  - v. 40 = 2 x 2 x 2 x 5
  - vi. LCM = 2 x 2 x 2 x 3 x 3 x 5 = 360

MULTIPLICATION

- Multiply the denominators by the denominators and the numerators by the numerators.
- A whole number can be thought of as a fraction (i.e., 6 = 6/1).
- To multiply with mixed numerals, first convert the mixed numerals to fractions.

EQUIVALENT FRACTIONS – are they the same?

- Multiply the numerator of one fraction by the denominator of the other fraction, for both fractions.
- “Cross Multiplication”
- Compare if the numbers are equal

- Cross Multiplication – the procedure of multiplying the numerator of one fraction by the denominator of the other fraction, for both fractions.
- Reciprocal – the inverse fraction of a number, so that the product of the number and its reciprocal is 1. It is the number flipped.

DIVISION

- To divide fractions, you must multiply the dividend by the reciprocal of the divisor

ADDITION & SUBTRACTION

- If the denominators are the same, then add (or subtract) the numerators and place the total over the denominator.
- If the denominators are not the same, then you cannot add or subtract. You must make the denominators the same first:
  1. Find the Least Common Denominator (LCD) by finding the LCM
  2. Multiply by 1 in the form of n/n to get the LCD
  3. Simplify your answer