Tutorial Set 11 Adding Fractions – An Introduction

Considering a fraction represented as num/den, num is called the numerator and den is called the denominator, so given 4/7, 4 is the numerator and 7 is the denominator.

Two fractions can be added only if their denominators are the same. If the denominators are the same, add the two numerators and use the denominator. As an example, 3/2 + 5/2 = 8/2.

If the denominators are not the same, we must change the fractions so as to make the denominations the same. In doing so, remember that multiplying a fraction by a value such as X/X is just multiplying by the value 1, so it is legal. So if we wish to add 2/3 + 4/5 we can multiply 2/3 by 5/5 to get 10/15 and multiply 4/5 by 3/3 to get 12/15. Then, 2/3 + 4/5 is the same as 10/15 + 12/15 = 22/15.

If you can follow this, we are saying that to add N1/D1 + N3/D4 (having different denominators, multiply the first number by D4/D4 and the second number by D1/D1 to give (N1/D1)xD4/D4) +

(N3/D3)x(D1/D1). This give (D1xD4)/(D1xD4) + (N3xD1)/(D4xD1); Now both numbers have the denominator of D1xD4.

Note that we multiply numerator by numerator and denominator be denominator.

This is called a common denominator. However, we would like to have the smallest possible common denominator which is called the least common denominator. We will discuss that later. However, the method we just presented often results in the least common denominator.

An additional example:

3/5+ 4/3 = (3/3)*(3/5) + (5/5)x(4/3) = 9/15 + 20/15 = 29/15.

Later, we will also discuss reducing fractions to their lowest term.

Now, you tried it.

I. Adding Fractions with common denominators

a. 2/4 + 5/4 = b. 6/9 + 5/9 = c. 5/8 = 2/8 = d. 4/3 + 2/3 = e. 4/9 + 3/9 =

II. Adding Fractions with different denominators

a. 2/3 + 6/4 = b. 4/5 + 3/7= c. 3/4 + 2/6 = d. 2/8 + 4/3 = e. 4/9 + 4/5 =