Cutting Method to Multiply Fractions

Did you notice in the previous lesson's problems ***e.*** *and* ***f,*** *where, after multiplying numerator to numerator and denominator to denominator the answering fraction got big numbers as its numerator and denominator, which made it very hard for us to reduce that fraction into lowest terms.*

But don't worry you are going to learn another skill to deal with this. The method is called cancelling the fractions ***(We call it cutting method and we always use this method to multiply or divide fractions).*** *That's why we introduced this method in early stages when you learned to reduce the fractions and we are using this method quite aggressively in reducing fraction. To use this method just reduce your fractions by cutting with gcf before you multiply them. Let's do the previous example parts* ***e*** *and* ***f*** *again by cutting method:*

e. $\frac{12}{25} \times \frac{15}{16}$

Try to reduce the fractions by cutting numerators with denominators. You can cut numerator and denominator of the same fraction but also with the other fraction. Yes, the numerator of the first fraction can be cut with the denominator of the second fraction if they have any common factor other than one.

In this example, the first fraction's numerator and denominator has only 1 as their common factor and same is with the second fraction. But if you look at the numerator of the first fraction, which is 12, and the denominator of the second fraction which 16, their gcf is 4, and in other words you can cut them by 4. Same way the denominator of the first fraction (25) and numerator of the second fraction (15) have gcf is equal to 5, so you can reduce (cut) them by 5. The fractions are multiplied below:

Note: Never ever cut the numerator to numerator and denominator to denominator, when multiplying two or more fractions.

$\frac{\cancel{12}^{\,3}}{\cancel{25}_{\,5}} \times \frac{\cancel{15}^{\,3}}{\cancel{16}_{\,4}} = \frac{3 \times 3}{5 \times 4} = \frac{9}{20}$

The numbers with same gcf are color coded for simplicity. Here 12 and 16 have gcf 4 so divide both by 4 (gcf) to get 3 and 4 respectively. Same way 15 and 25 got cut by 5 (gcf) to get 3 and 5.

f. $\frac{\cancel{14}^{\,1}}{17} \times \frac{11}{\cancel{14}_{\,1}} = \frac{1 \times 11}{17 \times 1} = \frac{11}{17}$

If you are multiplying two or more fractions and you see the same number in numerator and denominator it out at both spots to get 1 for both. This is why any

So, we have 14 as the numerator of the first fraction and denominator of the second fraction, so cut both 14 with each other to get 1 for each of them.