Add: To add fractions, you have to have the same denominators. When you have the same denominators, only then can you add.

Ex.1 $\dfrac{2}{5}+\dfrac{1}{5}$ Same denominator, then add: $\dfrac{2}{5}+\dfrac{1}{5}=\dfrac{3}{5}$

When you add fractions, only add the numerators and keep the same denominator.

Ex.2 $\dfrac{2}{7}+\dfrac{3}{5}$ If the denominators are different, find the LCM of the denominator.Finding the LCM will be explained later. The LCM is 35, so ask yourself, what do I need to multiply to the denominator to get 35. Multiply 5 to the first to get 35 and 7 to the second to get 35.

$\left(\dfrac{5}{5}\right)\cdot\dfrac{2}{7}+\dfrac{3}{5}\cdot\left(\dfrac{7}{7}\right)\rightarrow\dfrac{10}{35}+\dfrac{21}{35}$ Now that the denominators are the same, add like normal.

$\dfrac{10}{35}+\dfrac{21}{35}\;\blacktriangleright\;\dfrac{31}{35}$

Subtract Fractions: When you **add or subtract fractions**, you need the same denominators.

Ex.1 $\dfrac{3}{5}-\dfrac{2}{5}$ Same denominator, subtract: $\dfrac{3}{5}-\dfrac{2}{5}=\dfrac{1}{5}$

When you add or subtract fractions, only add the numerators and keep the same denominator.

Ex.2 $\dfrac{3}{4}-\dfrac{3}{8}$ Find the LCM. The LCM is 8. Since the 2nd fraction's denominator is already 8, do change that fraction. Only change the one that is not 8. **This is also for addition.**

$\left(\dfrac{2}{2}\right)\cdot\dfrac{3}{4}-\dfrac{3}{8}\rightarrow\dfrac{6}{8}-\dfrac{3}{8}\;\blacktriangleright\;\dfrac{3}{8}$

Multiplication: **You do not need same denominators here.**

Rule: Just multiply the numerator with the numerator and the denominator with the denominator.

Ex.1 $\dfrac{2}{3} \cdot \dfrac{3}{5} = \dfrac{2 \cdot 3}{3 \cdot 5} = \dfrac{6}{15}$ This is the final answer since you can't simplify it.

When multiplying, you can simplify the **diagonals** only in multiplication.

Ex.2 $\dfrac{4}{10} \cdot \dfrac{20}{16}$ The 20/10=2 and 10/10=1; The 16/4=4 and 4/4=1

$\dfrac{1}{1} \cdot \dfrac{2}{4} = \dfrac{2 \cdot 1}{4 \cdot 1} = \dfrac{2}{4} = \dfrac{1}{2}$

Division is simple. All you got to do is flip the second fraction over and it just becomes multiplication.

Ex.1 $\dfrac{2}{3} / \dfrac{3}{5}$

Flip the second one over and multiply

$\dfrac{2}{3} \cdot \dfrac{5}{3}$ Now multiply. Look at the Rules of multiplication.

$= \dfrac{10}{9}$