

Add or Subtract Fractions (According to Robert)

Example: $\frac{7}{90} + \frac{3}{40} - \frac{2}{75}$

1st → Get the LCD (lowest common denominator) by factoring each denominator into prime factors.

$$90 = 2 \cdot \underline{3} \cdot \underline{3} \cdot 5$$

$$40 = \underline{2} \cdot \underline{2} \cdot \underline{2} \cdot 5$$

$$75 = 3 \cdot \underline{5} \cdot \underline{5}$$

The LCD is made up of the largest "group" of each type of prime factor.

$$LCD = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 5 \cdot 5 = 1800$$

2nd → Use the LCD factors that comprise each denominator to see what is "missing". Use the "missing" part to change each fraction into LCD form.

example: $\overbrace{2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 5 \cdot 5}^{90}$ what's left is $2 \cdot 2 \cdot 5 = 20$

$$\frac{7 \cdot 20}{90 \cdot 20} + \frac{3 \cdot 45}{40 \cdot 45} - \frac{2 \cdot 24}{75 \cdot 24}$$

3rd → Write the entire problem as a single fraction.

$$\frac{140 + 135 - 48}{1800} = \frac{227}{1800}$$

4th → Try to reduce the result to "lowest terms." (You only need to test the numerator with the factors that make up the LCD.)

227 is not divisible by 2, 3, or 5.

Therefore the answer is $\frac{227}{1800}$ (a rational number)