Add Fractions

* common denominator

$$\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$$

* Simplify

$$\frac{9 \div 3}{12 \div 3} = \frac{3}{4}$$

N/D Subtract Fractions

* common denominator

$$\frac{10}{12} - \frac{2 \times 2}{6 \times 2}$$

$$\frac{10}{12} - \frac{4}{12} = \frac{6}{12}$$

* Simplify $\frac{6 \div 6}{12 \div 6} = \frac{1}{2}$

Multiply Fractions

* multiply straight across

$$\frac{3}{4} \times \frac{1}{3} = \frac{3}{12}$$

* Simplify

$$\frac{3 \div 3}{12 \div 3} = \frac{1}{4}$$

reciprocal

Divide Fractions

Keep the first fraction
Change ÷ to ×
Flip the second fraction

$$\frac{4}{9} \div \frac{1}{5}$$

*Simplify

$$\frac{4}{9} \times \frac{5}{1} = \frac{20}{9} \times 2 = 18$$

$$= 2\frac{2}{9}$$

Add Decimals

* line up decimal points

ex

$$\begin{array}{r} {\scriptstyle 1\ \ 1\ \ \ \ \ \ } \\ 76.931 \\ +\ 42.019 \\ \hline 118.950 \end{array}$$

Subtract Decimals

* line up decimal points

ex

$$\begin{array}{r} {\scriptstyle 4\ 10\ \ \ \ 6\ 14} \\ 502.714 \\ -\ 281.36 \\ \hline 221.354 \end{array}$$

* to check: add up

Multiply Decimals

* count hops to move decimal

ex

$$\begin{array}{r} {\scriptstyle 1\ \ \ \ \ \ \ \ } \\ 3.61 \\ \times\ .39 \\ \hline 3249 \\ 10830 \\ \hline 1.4079 \end{array}$$

Divide Decimals

* no decimals in my divisor

divisor) dividend

ex

$$\begin{array}{r} 243. \\ 2\overline{)486} \\ -4\downarrow\ \ \downarrow \\ \ \ 08\ \ \downarrow \\ \ \ -8\ \ \downarrow \\ \ \ \ \ 06 \\ \ \ \ \ -6 \\ \ \ \ \ \ \ 0\ \checkmark \end{array}$$

$=243$

*GCF - Greatest Common Factor

12 and 16

4	12	16
	3	4

↑ GCF

48 and 18

2 × 3	48	18
	24	9
	8	3

↑ GCF = 2 × 3 = 6

---

* LCM - Least Common Multiple

12 and 16

4 ×	12	16
	3 × 4	

LCM

4 × 3 = 12 × 4 = 48

9 and 27

3 × 3 ×	9	27
	3	9
	1	× 3

LCM

3 × 3 = 9 × 1 = 9 × 3 = 27

---

* Prime Factorization - breaking a # down to only prime factors

↓ a # whose only factors are 1 and itself

64

8 8

4 2 4 2

2 2 2 2

= 2 × 2 × 2 × 2 × 2 × 2

26

2 13

= 2 × 13

Factor: the #s that Multiply to Give you a #

ex 24

1×24
2×12
3×8
4×6

Multiple: #s you get when multiplying by a constant #

ex 5, 10, 15, 20, 25, 30...
↳ Multiples of 5

→ value that doesn't change