Simplest Form Fraction or a "Reduced Fraction"

Finding an equivalent fraction that can not be divided anymore by any common factor of the numerator and denominator.

It's easiest when you can find the Greatest Common Factor (GCF).

Step 1: Find all the factors of the numerator & denominator.

$\frac{12}{14}$ → 1, 2, 3, 4, 6, 12

14 → 1, 2, 7, 14

Step 2: The Greatest Common Factor (GCF) is 2.

Step 3: Divide the numerator and denominator by the GCF.

$$\frac{12 \div 2}{14 \div 2} = \frac{6}{7}$$ ← This is the "simplest form"/ "reduced fraction" of $\frac{12}{14}$.

Another example:

$\frac{20}{30}$ → 1, 2, 4, 5, 10, 20

30 → 1, 2, 3, 5, 6, 10, 15, 30

GCF = 10

$$\frac{20 \div 10}{30 \div 10} = \frac{2}{3}$$ ← Simplest form

Mixed Numbers to Improper Fractions

$2\frac{1}{3} \rightarrow 2\begin{cases} +1 \longrightarrow 3\times2+1=7 \\ \times 3 \longrightarrow 3 \end{cases} \frac{7}{3}$

$4\frac{4}{5} \rightarrow 4\begin{cases} +4 \longrightarrow 5\times4+4=24 \\ \times 5 \longrightarrow 5 \end{cases} \frac{24}{5}$

★ Visual for "how this works". ★

$4\frac{3}{4} \rightarrow$

$\frac{4}{4}+\frac{4}{4}+\frac{4}{4}+\frac{4}{4}+\frac{3}{4}=\frac{19}{4}$

check → $4\begin{cases} +3 \longrightarrow 4\times4+3=19 \\ \times 4 \longrightarrow 4 \end{cases} \frac{19}{4}$

Improper fractions to Mixed Numbers

Improper fraction: when the numerator is larger than the denominator. Ex: $\frac{10}{9}$

Mixed number: a whole number and a fraction.
Ex: $3\frac{2}{3}$

There are 2 ways to convert.

Strategy #1: $\frac{10}{9} \rightarrow 9\overline{)10}$ (1, remainder 1) $= \frac{1}{9}$ = Answer is $1\frac{1}{9}$

Another example: $\frac{15}{11}$ $11\overline{)15}$ (1, remainder 4) $= 1\frac{4}{11}$ or $\frac{15}{5}$ $5\overline{)15}$ (3, remainder 0) $= 3$

Strategy #2: $\frac{22}{3}$ Make as many whole numbers as you can first.

$\frac{3}{3}$ (1) $+ \frac{3}{3}$ (2) $+ \frac{3}{3}$ (3) $+ \frac{3}{3}$ (4) $+ \frac{3}{3}$ (5) $+ \frac{3}{3}$ (6) $+ \frac{3}{3}$ (7) $= \frac{21}{3}$ (7 wholes)

$\frac{21}{3} + \frac{1}{3} = \frac{22}{3}$

This was 7 wholes and $\frac{1}{3}$ more.

Answer = $7\frac{1}{3}$