Simplifying Fractions Using Prime Factorization

Ex: Simplify:

$\frac{5}{10}$

5 (circled)

10 → 2, 5 (circled)

$\div \rightarrow \frac{\cancel{5}^{1}}{2 \cdot \cancel{5}_{1}}$

$\boxed{\frac{1}{2}}$

Ex: $\frac{9}{15}$

9 → 3, 3 (circled)

15 → 3, 5 (circled)

$\frac{{}^{1}\cancel{3} \cdot 3}{{}_{1}\cancel{3} \cdot 5}$

$\boxed{\frac{3}{5}}$

OYO: $\frac{10}{12}$

10 → 2, 5 (circled)

12 → 4, 3; 4 → 2, 2 (circled)

12 → 2, 6; 6 → 2, 3 (circled)

$\frac{{}^{1}\cancel{2} \cdot 5}{{}^{1}\cancel{2} \cdot 2 \cdot 3}$

$\boxed{\frac{5}{6}}$

Ex: $\frac{40}{200}$

40 → 2, 20; 20 → 2, 10; 10 → 2, 5 (circled)

200 → 10, 20; 10 → 2, 5; 20 → 2, 10; 10 → 2, 5 (circled)

$\frac{{}^{1}\cancel{2} \cdot {}^{1}\cancel{2} \cdot {}^{1}\cancel{2} \cdot \cancel{5}^{1}}{{}_{1}\cancel{2} \cdot {}_{1}\cancel{2} \cdot {}_{1}\cancel{2} \cdot \cancel{5}_{1} \cdot 5}$

$\boxed{\frac{1}{5}}$

Ex:) $\frac{21}{26}$

$\frac{3 \cdot 7}{2 \cdot 13}$ ← THIS IS ALREADY SIMPLIFIED.