5th

fractions

$$\frac{\text{numerator}}{\text{denominator}}$$

Mixed Numbers to Improper Fractions

Addition

Subtraction

Multiplication

Division

Mixed Numbers to Improper Fractions

1. Multiply the whole number by the denominator.
2. Add the answer from step 1 and the numerator. This becomes your new numerator.
3. The denominator stays the same.

ex1

$3\frac{1}{4}$

① $3 \cdot 4 = 12$

② $12 + 1 = 13$

$\frac{13}{4}$

ex2

$10\frac{4}{5}$

① $10 \cdot 5 = 50$

② $50 + 4 = 54$

$\frac{54}{5}$

Mixed Numbers to Improper Fractions

Addition

1. Find the least common denominator (LCD).*
2. Add the numerators.
3. The denominator stays the same.
4. Simplify (if needed).

*Can ALWAYS multiply the denominators

ex1

$\frac{1}{3}+\frac{5}{6}$

① $\frac{1}{3}\cdot\frac{2}{2}=\frac{2}{6}$

② $\frac{2}{6}+\frac{5}{6}=\frac{7}{6}$ or $1\frac{1}{6}$

ex2

$2\frac{1}{3}+\frac{3}{5}$

$2\cdot3=6$

$6+1=7$

① $\frac{7\cdot5}{3\cdot5}+\frac{3}{5}\cdot\frac{3}{3}$

② $\frac{35}{15}+\frac{9}{15}=\frac{44}{15}$

$2\frac{14}{15}$

Addition

Subtraction

1. Find the least common denominator (LCD).*
2. ~~Add~~ Subtract the numerators.
3. The denominator stays the same.
4. Simplify (if needed).

*

ex1

$$\frac{11}{12} - \frac{3}{4} \cdot \frac{3}{3}$$

① $\frac{3}{4} \cdot \frac{3}{3} = \frac{9}{12}$

② $\frac{11}{12} - \frac{9}{12} = \frac{2}{12}$

④ $\frac{2}{12} \div \frac{2}{2} = \frac{1}{6}$

ex2

$$2\frac{1}{4} - \frac{5}{6}$$

$2 \cdot 4 = 8$
$8 + 1 = 9$

$$\frac{9}{4} \cdot \frac{3}{3} - \frac{5}{6} \cdot \frac{2}{2}$$

① $\frac{27}{12} - \frac{10}{12} = \frac{17}{12}$ or $1\frac{5}{12}$

Multiplication

1. No common denominator needed.
2. Multiply the numerators.
3. Multiply the denominators.
4. Simplify (if needed).

ex 1

$$\frac{8}{9} \cdot \frac{2}{5}$$

$$\frac{8}{9} \cdot \frac{2}{5} = \frac{16}{45}$$

ex 2

$$\frac{4}{11} \cdot 1\frac{2}{3}$$

$1 \cdot 3 = 3$

$3 + 2 = 5$

$$\frac{4}{11} \cdot \frac{5}{3} = \frac{20}{33}$$

Multiplication

Division

1. I – All fractions need to be Mixed Numbers Improper.
2. S – Same 1st fraction.
3. O – Opposite operation
4. A – And ☺
5. R – 2nd fraction becomes its reciprocal (flip)
6. Follow the steps for multiplication

ex1 SOAR

$$\frac{11}{15} \div \frac{1}{3}$$

$$\frac{11}{15} \cdot \frac{3}{1} = \frac{33}{15}$$

$$\frac{33 \div 3}{15 \div 3} = \frac{11}{5}$$

or $2\frac{1}{5}$

ex2

$$1\frac{1}{6} \div \frac{4}{9}$$

$1 \cdot 6 = 6$

$6 + 1 = 7$

$$\frac{7}{6} \div \frac{4}{9}$$

$$\frac{7}{6} \cdot \frac{9}{4} = \frac{7 \cdot 9^{3}}{{}_{2}6 \cdot 4}$$

$$\frac{21}{8} \text{ or } 2\frac{5}{8}$$

$$\frac{63 \div 3}{24 \div 3} = \frac{21}{8}$$

Division