How to add fractions with different denominators: $\frac{2}{9}+\frac{2}{6}$

Find the least common denominator (LCD), or at least a common denominator, of the fractions.	LCD = 18 (9x2=18 and 6x3=18)
Rename the fractions to have the common denominator.	$\frac{2}{9}=\frac{4}{18} and \frac{2}{6}=\frac{6}{18}$
Add the numerators of the fractions (keeping the same common denom.)	$\frac{4}{18}+\frac{6}{18}=\frac{10}{18}$
Simplify the fraction sum.	$\frac{10}{18}=\frac{5}{9}$

How to add mixed numbers whose fractions have the same denominator:

Example: $3\frac{2}{3}+5\frac{2}{3}$ *When the denominators are different, start by making equivalent fractions with the LCD.*

Add the fractional part of the mixed numbers.	$\frac{2}{3}+\frac{2}{3}=\frac{4}{3}$
Convert the improper fraction to a mixed number.	$\frac{4}{3}=1\frac{1}{3}$
Add the integer portions of the mixed numbers.	3+5=8
Add the integer from the sum of the fractions	8+1=9
State the final answer. Simplify if necessary.	$9\frac{1}{3}$

How to multiply fractions Example: $\frac{2}{9}\times\frac{3}{12}$

Multiply the numerators	2 x 3 = 6
Multiply the denominators	9 x 12 = 108
Place the product of the numerators over the product of the denominators	$\frac{6}{108}$
Simplify the Fraction	$\frac{6\div 6}{108\div 6}=\frac{1}{18}$

How to divide fractions Example: $\frac{7}{8}\div\frac{2}{3}$

Invert (i.e. turn over) the denominator fraction and multiply the fractions	$\frac{7}{8}\div\frac{2}{3}=\frac{7}{8}\times\frac{3}{2}$
Multiply the numerators of the fractions	$7\times 3=21$
Multiply the denominators of the fractions	$8\times 2=16$
Place the product of the numerators over the product of the denominators	$\frac{21}{16}$
Simplify the Fraction	$1\frac{5}{16}$

How to subtract fractions with different denominators: $\frac{4}{8}-\frac{1}{6}$

Find the Lowest Common Denominator (LCD) of the fractions	**LCD = 24** (8x3=24 and 6x4=24)
Rename the fractions to have the LCD	$\frac{4}{8}=\frac{12}{24} and \frac{1}{6}=\frac{4}{24}$
Subtract the numerators of the fractions. The difference will be the numerator and the LCD will be the denominator of the answer.	$\frac{12}{24}-\frac{4}{24}=\frac{8}{24}$
Simplify the Fraction	$\frac{8}{24}=\frac{1}{3}$

How to subtract mixed numbers whose fractions have the same denominator:

Example: $5\frac{1}{3}-3\frac{2}{3}$ *When the denominators are different, start by making equivalent fractions with the LCD.*

If the first numerator is smaller than the second, regroup to make the first numerator larger.	$5\frac{1}{3}=4\frac{4}{3}$
Subtract the fractional parts of the mixed numbers	$\frac{4}{3}-\frac{2}{3}=\frac{2}{3}$
Subtract the integer portions of the mixed numbers	$4-3=1$
State the final answer. Then simplify if necessary.	$1\frac{2}{3}$

How to multiply mixed numbers Example: $6\frac{2}{8}\times 3\frac{5}{9}$

Convert each mixed number to an improper fraction.	$\frac{50}{8}\times\frac{32}{9}$
Multiply the two numerators together.	$50\times 32=1600$
Multiply the two denominators together.	$8\times 9=72$
Convert the result to a mixed number.	$\frac{1600}{72}=22\frac{16}{72}$
Simplify the mixed number.	$22\frac{16}{72}=22\frac{2}{9}$

How to divide mixed numbers Example $6\frac{2}{8}\div 3\frac{5}{9}$

Convert each mixed number to an improper fraction.	$\frac{50}{8}\div\frac{32}{9}$
Invert the second improper fraction and multiply.	$\frac{50}{8}\times\frac{9}{32}$
Multiply the two numerators. Multiply the denominators.	$50\times 9=450$
Multiply the two denominators together.	$8\times 32=256$
Convert the result back to a mixed number.	$\frac{450}{256}=1\frac{194}{256}$
Simplify the mixed number.	$1\frac{97}{128}$