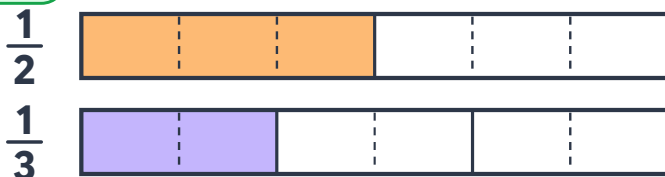


Unlike Denominators

Find a common denominator. Rewrite both fractions.

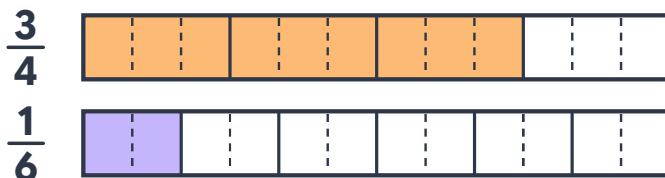
Use the strips. The dashed lines cut them into equal parts.

Example



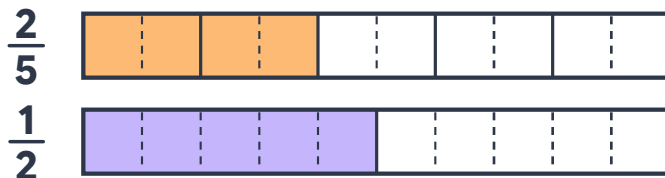
$$\frac{1}{2} + \frac{1}{3} = \frac{\boxed{3}}{\boxed{6}} + \frac{\boxed{2}}{\boxed{6}}$$

1.



$$\frac{3}{4} + \frac{1}{6} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}}$$

2.



$$\frac{2}{5} + \frac{1}{2} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}}$$

Circle the least common multiple. Use it as the denominator.

Example

Multiples of 4: 4 8 **12** 16 20

Multiples of 6: 6 **12** 18 24 30

$$\frac{3}{4} = \frac{\boxed{9}}{\boxed{12}} \quad \frac{5}{6} = \frac{\boxed{10}}{\boxed{12}}$$

3.

Multiples of 6: 6 12 18 24 30

Multiples of 8: 8 16 24 32 40

$$\frac{1}{6} = \frac{\boxed{}}{\boxed{}} \quad \frac{3}{8} = \frac{\boxed{}}{\boxed{}}$$

4.

Multiples of 3: 3 6 9 12 15

Multiples of 5: 5 10 15 20 25

$$\frac{2}{3} = \frac{\boxed{}}{\boxed{}} \quad \frac{4}{5} = \frac{\boxed{}}{\boxed{}}$$

5.

Multiples of 10: 10 20 30 40 50

Multiples of 4: 4 8 12 16 20

$$\frac{3}{10} = \frac{\boxed{}}{\boxed{}} \quad \frac{1}{4} = \frac{\boxed{}}{\boxed{}}$$

Unlike Denominators

Add. Write each sum in simplest form.

Rewrite, add, then simplify. A sum more than 1 is a mixed number.

Example

$$\frac{3}{4} + \frac{2}{3} = \frac{\boxed{9}}{\boxed{12}} + \frac{\boxed{8}}{\boxed{12}} = \frac{\boxed{17}}{\boxed{12}} = \boxed{1\frac{5}{12}}$$

$$1. \quad \frac{1}{6} + \frac{1}{2} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$2. \quad \frac{2}{5} + \frac{3}{10} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$3. \quad \frac{5}{6} + \frac{3}{4} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$4. \quad \frac{3}{8} + \frac{5}{12} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$5. \quad \frac{7}{10} + \frac{1}{2} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$6. \quad \frac{2}{3} + \frac{1}{5} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$7. \quad \frac{1}{2} + \frac{1}{3} + \frac{1}{6} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

Unlike Denominators

Subtract. Write each difference in simplest form.

Rewrite with a common denominator, subtract, then simplify.

Example

$$\frac{9}{10} - \frac{2}{5} = \frac{\boxed{9}}{\boxed{10}} - \frac{\boxed{4}}{\boxed{10}} = \frac{\boxed{5}}{\boxed{10}} = \boxed{\frac{1}{2}}$$

$$1. \quad \frac{3}{4} - \frac{1}{8} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$2. \quad \frac{2}{3} - \frac{1}{2} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$3. \quad \frac{5}{6} - \frac{1}{4} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$4. \quad \frac{7}{8} - \frac{1}{6} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$5. \quad \frac{4}{5} - \frac{1}{3} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$6. \quad \frac{11}{12} - \frac{2}{3} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$7. \quad \frac{7}{6} - \frac{3}{4} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

Unlike Denominators

Add and subtract mixed numbers. Trade 1 whole when you need to.

Rewrite, then add or subtract. Write answers in simplest form.

Example

Rewrite

$$\begin{array}{r}
 2\frac{3}{4} = 2\frac{9}{12} \\
 + 1\frac{2}{3} = 1\frac{8}{12} \\
 \hline
 3\frac{17}{12} = 4\frac{5}{12}
 \end{array}$$

Example

Rewrite

Trade 1 whole

$$\begin{array}{r}
 5\frac{1}{4} = 5\frac{3}{12} = 4\frac{15}{12} \\
 - 2\frac{2}{3} = 2\frac{8}{12} = 2\frac{8}{12} \\
 \hline
 2\frac{7}{12}
 \end{array}$$

$$\begin{array}{r}
 1. \quad 3\frac{1}{2} = 3\frac{\boxed{}}{\boxed{}} \\
 + 2\frac{1}{6} = 2\frac{\boxed{}}{\boxed{}} \\
 \hline
 \boxed{}\frac{\boxed{}}{\boxed{}} = \boxed{}
 \end{array}$$

$$\begin{array}{r}
 2. \quad 4\frac{1}{6} = 4\frac{\boxed{}}{\boxed{}} = \boxed{}\frac{\boxed{}}{\boxed{}} \\
 - 1\frac{3}{4} = 1\frac{\boxed{}}{\boxed{}} = \boxed{}\frac{\boxed{}}{\boxed{}} \\
 \hline
 \boxed{}\frac{\boxed{}}{\boxed{}}
 \end{array}$$

$$\begin{array}{r}
 3. \quad 2\frac{5}{6} = 2\frac{\boxed{}}{\boxed{}} \\
 + 1\frac{1}{2} = 1\frac{\boxed{}}{\boxed{}} \\
 \hline
 \boxed{}\frac{\boxed{}}{\boxed{}} = \boxed{}
 \end{array}$$

$$\begin{array}{r}
 4. \quad 6\frac{2}{5} = 6\frac{\boxed{}}{\boxed{}} = \boxed{}\frac{\boxed{}}{\boxed{}} \\
 - 3\frac{1}{2} = 3\frac{\boxed{}}{\boxed{}} = \boxed{}\frac{\boxed{}}{\boxed{}} \\
 \hline
 \boxed{}\frac{\boxed{}}{\boxed{}}
 \end{array}$$

Unlike Denominators

Estimate first. Then check that each answer makes sense.

Estimate with 0, $\frac{1}{2}$, and 1. Does each answer make sense?

Example

$$\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$$

Estimate:

$$\frac{1}{2} + \frac{1}{2} = 1$$

Does it make sense?

Yes

No

Why? $\frac{3}{7}$ is less than $\frac{1}{2}$,
but the sum is about 1.

1.

$$\frac{5}{6} - \frac{1}{3} = \frac{1}{2}$$

Estimate:

$$\square - \square = \square$$

Does it make sense?

Yes

No

Why? _____

2.

$$\frac{7}{8} + \frac{5}{6} = \frac{12}{14}$$

Estimate:

$$\square + \square = \square$$

Does it make sense?

Yes

No

Why? _____

Estimate first. Then solve. Write the answer in simplest form.

Example

Maya walks $\frac{4}{5}$ mile to school.
Then she walks $\frac{2}{3}$ mile to the park. How
far does she walk in all?

Estimate: $1\frac{1}{2}$ $1\frac{7}{15}$ miles

3. A ribbon is $2\frac{1}{2}$ yards long. Sam cuts
off $1\frac{1}{3}$ yards for a bow. How much
ribbon is left?

Estimate: _____ $\square$ yards

4. A jug holds $\frac{7}{8}$ liter of juice. Ana
pours $\frac{1}{3}$ liter into a glass. How much
juice is left in the jug?

Estimate: _____ $\square$ liter

5. Kim has 3 cups of flour. She uses $1\frac{1}{6}$
cups for bread and $\frac{2}{3}$ cup for
muffins. How much flour is left?

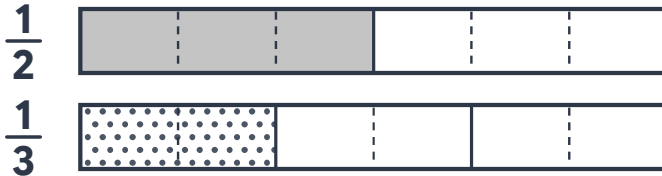
Estimate: _____ $\square$ cups

Unlike Denominators

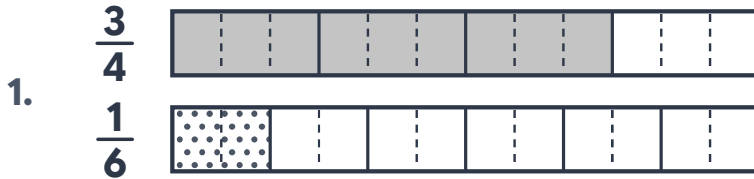
Find a common denominator. Rewrite both fractions.

Use the strips. The dashed lines cut them into equal parts.

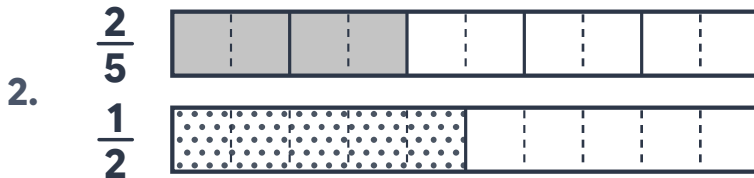
Example



$$\frac{1}{2} + \frac{1}{3} = \frac{\boxed{3}}{\boxed{6}} + \frac{\boxed{2}}{\boxed{6}}$$



$$\frac{3}{4} + \frac{1}{6} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}}$$



$$\frac{2}{5} + \frac{1}{2} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}}$$

Circle the least common multiple. Use it as the denominator.

Example

Multiples of 4: 4 8 **12** 16 20
 Multiples of 6: 6 **12** 18 24 30

$$\frac{3}{4} = \frac{\boxed{9}}{\boxed{12}} \quad \frac{5}{6} = \frac{\boxed{10}}{\boxed{12}}$$

3.

Multiples of 6: 6 12 18 24 30
 Multiples of 8: 8 16 24 32 40

$$\frac{1}{6} = \frac{\boxed{}}{\boxed{}} \quad \frac{3}{8} = \frac{\boxed{}}{\boxed{}}$$

4.

Multiples of 3: 3 6 9 12 15
 Multiples of 5: 5 10 15 20 25

$$\frac{2}{3} = \frac{\boxed{}}{\boxed{}} \quad \frac{4}{5} = \frac{\boxed{}}{\boxed{}}$$

5.

Multiples of 10: 10 20 30 40 50
 Multiples of 4: 4 8 12 16 20

$$\frac{3}{10} = \frac{\boxed{}}{\boxed{}} \quad \frac{1}{4} = \frac{\boxed{}}{\boxed{}}$$

Unlike Denominators

Add. Write each sum in simplest form.

Rewrite, add, then simplify. A sum more than 1 is a mixed number.

Example

$$\frac{3}{4} + \frac{2}{3} = \frac{\boxed{9}}{\boxed{12}} + \frac{\boxed{8}}{\boxed{12}} = \frac{\boxed{17}}{\boxed{12}} = \boxed{1\frac{5}{12}}$$

$$1. \quad \frac{1}{6} + \frac{1}{2} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$2. \quad \frac{2}{5} + \frac{3}{10} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$3. \quad \frac{5}{6} + \frac{3}{4} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$4. \quad \frac{3}{8} + \frac{5}{12} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$5. \quad \frac{7}{10} + \frac{1}{2} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$6. \quad \frac{2}{3} + \frac{1}{5} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

$$7. \quad \frac{1}{2} + \frac{1}{3} + \frac{1}{6} = \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

Unlike Denominators

Subtract. Write each difference in simplest form.

Rewrite with a common denominator, subtract, then simplify.

Example

$$\frac{9}{10} - \frac{2}{5} = \frac{\boxed{9}}{\boxed{10}} - \frac{\boxed{4}}{\boxed{10}} = \frac{\boxed{5}}{\boxed{10}} = \boxed{\frac{1}{2}}$$

1. $\frac{3}{4} - \frac{1}{8} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$

2. $\frac{2}{3} - \frac{1}{2} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$

3. $\frac{5}{6} - \frac{1}{4} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$

4. $\frac{7}{8} - \frac{1}{6} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$

5. $\frac{4}{5} - \frac{1}{3} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$

6. $\frac{11}{12} - \frac{2}{3} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$

7. $\frac{7}{6} - \frac{3}{4} = \frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{}$

Unlike Denominators

Add and subtract mixed numbers. Trade 1 whole when you need to.

Rewrite, then add or subtract. Write answers in simplest form.

Example	Rewrite
$2\frac{3}{4} = 2\frac{\boxed{9}}{\boxed{12}}$	
$+ 1\frac{2}{3} = 1\frac{\boxed{8}}{\boxed{12}}$	
$\boxed{3}\frac{\boxed{17}}{\boxed{12}} = \boxed{4}\frac{\boxed{5}}{\boxed{12}}$	

Example	Rewrite	Trade 1 whole
$5\frac{1}{4} = 5\frac{\boxed{3}}{\boxed{12}} = \boxed{4}\frac{\boxed{15}}{\boxed{12}}$		
$- 2\frac{2}{3} = 2\frac{\boxed{8}}{\boxed{12}} = \boxed{2}\frac{\boxed{8}}{\boxed{12}}$		
		$\boxed{2}\frac{\boxed{7}}{\boxed{12}}$

1. $3\frac{1}{2} = 3\frac{\boxed{}}{\boxed{}}$

$+ 2\frac{1}{6} = 2\frac{\boxed{}}{\boxed{}}$

$\boxed{}\frac{\boxed{}}{\boxed{}} = \boxed{}$

2. $4\frac{1}{6} = 4\frac{\boxed{}}{\boxed{}} = \boxed{}\frac{\boxed{}}{\boxed{}}$

$- 1\frac{3}{4} = 1\frac{\boxed{}}{\boxed{}} = \boxed{}\frac{\boxed{}}{\boxed{}}$

$\boxed{}\frac{\boxed{}}{\boxed{}} = \boxed{}$

3. $2\frac{5}{6} = 2\frac{\boxed{}}{\boxed{}}$

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

$\boxed{}\frac{\boxed{}}{\boxed{}} = \boxed{}$

4. $6\frac{2}{5} = 6\frac{\boxed{}}{\boxed{}} = \boxed{}\frac{\boxed{}}{\boxed{}}$

$- 3\frac{1}{2} = 3\frac{\boxed{}}{\boxed{}} = \boxed{}\frac{\boxed{}}{\boxed{}}$

$\boxed{}\frac{\boxed{}}{\boxed{}} = \boxed{}$

Unlike Denominators

Estimate first. Then check that each answer makes sense.

Estimate with 0, $\frac{1}{2}$, and 1. Does each answer make sense?

Example

$$\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$$

Estimate:

$$\frac{1}{2} + \frac{1}{2} = 1$$

Does it make sense?

Yes

No

Why? $\frac{3}{7}$ is less than $\frac{1}{2}$,
but the sum is about 1.

1.

$$\frac{5}{6} - \frac{1}{3} = \frac{1}{2}$$

Estimate:

$$\square - \square = \square$$

Does it make sense?

Yes

No

Why? _____

2.

$$\frac{7}{8} + \frac{5}{6} = \frac{12}{14}$$

Estimate:

$$\square + \square = \square$$

Does it make sense?

Yes

No

Why? _____

Estimate first. Then solve. Write the answer in simplest form.

Example

Maya walks $\frac{4}{5}$ mile to school.
Then she walks $\frac{2}{3}$ mile to the park. How
far does she walk in all?

Estimate: $1\frac{1}{2}$ $1\frac{7}{15}$ miles

3. A ribbon is $2\frac{1}{2}$ yards long. Sam cuts
off $1\frac{1}{3}$ yards for a bow. How much
ribbon is left?

Estimate: _____ $\square$ yards

4. A jug holds $\frac{7}{8}$ liter of juice. Ana
pours $\frac{1}{3}$ liter into a glass. How much
juice is left in the jug?

Estimate: _____ $\square$ liter

5. Kim has 3 cups of flour. She uses $1\frac{1}{6}$
cups for bread and $\frac{2}{3}$ cup for
muffins. How much flour is left?

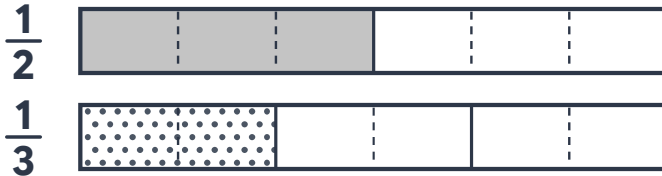
Estimate: _____ $\square$ cups

Unlike Denominators

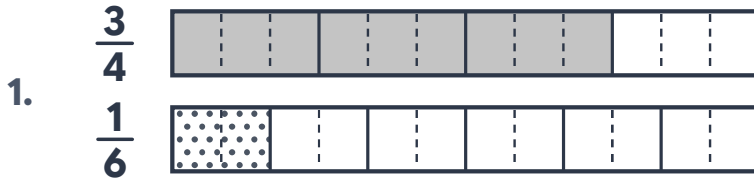
Find a common denominator. Rewrite both fractions.

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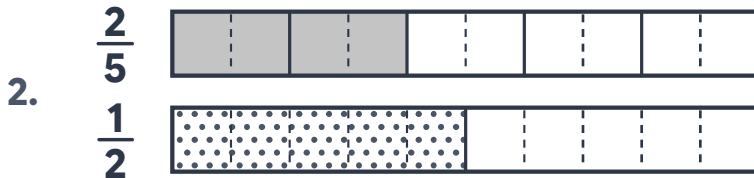
Example



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



$$\frac{3}{4} + \frac{1}{6} = \frac{9}{12} + \frac{2}{12}$$



$$\frac{2}{5} + \frac{1}{2} = \frac{4}{10} + \frac{5}{10}$$

Circle the least common multiple. Use it as the denominator.

Example

Multiples of 4: 4 8 **12** 16 20
 Multiples of 6: 6 **12** 18 24 30

$$\frac{3}{4} = \frac{9}{12} \quad \frac{5}{6} = \frac{10}{12}$$

3.
 Multiples of 6: 6 12 18 **24** 30
 Multiples of 8: 8 16 **24** 32 40

$$\frac{1}{6} = \frac{4}{24} \quad \frac{3}{8} = \frac{9}{24}$$

4.
 Multiples of 3: 3 6 9 12 **15**
 Multiples of 5: 5 10 **15** 20 25

$$\frac{2}{3} = \frac{10}{15} \quad \frac{4}{5} = \frac{12}{15}$$

5.
 Multiples of 10: 10 **20** 30 40 50
 Multiples of 4: 4 8 12 16 **20**

$$\frac{3}{10} = \frac{6}{20} \quad \frac{1}{4} = \frac{5}{20}$$

Unlike Denominators

Add. Write each sum in simplest form.

Rewrite, add, then simplify. A sum more than 1 is a mixed number.

Example

$$\frac{3}{4} + \frac{2}{3} = \frac{\boxed{9}}{\boxed{12}} + \frac{\boxed{8}}{\boxed{12}} = \frac{\boxed{17}}{\boxed{12}} = \boxed{1\frac{5}{12}}$$

$$1. \quad \frac{1}{6} + \frac{1}{2} = \frac{\boxed{1}}{\boxed{6}} + \frac{\boxed{3}}{\boxed{6}} = \frac{\boxed{4}}{\boxed{6}} = \boxed{\frac{2}{3}}$$

$$2. \quad \frac{2}{5} + \frac{3}{10} = \frac{\boxed{4}}{\boxed{10}} + \frac{\boxed{3}}{\boxed{10}} = \frac{\boxed{7}}{\boxed{10}} = \boxed{\frac{7}{10}}$$

$$3. \quad \frac{5}{6} + \frac{3}{4} = \frac{\boxed{10}}{\boxed{12}} + \frac{\boxed{9}}{\boxed{12}} = \frac{\boxed{19}}{\boxed{12}} = \boxed{1\frac{7}{12}}$$

$$4. \quad \frac{3}{8} + \frac{5}{12} = \frac{\boxed{9}}{\boxed{24}} + \frac{\boxed{10}}{\boxed{24}} = \frac{\boxed{19}}{\boxed{24}} = \boxed{\frac{19}{24}}$$

$$5. \quad \frac{7}{10} + \frac{1}{2} = \frac{\boxed{7}}{\boxed{10}} + \frac{\boxed{5}}{\boxed{10}} = \frac{\boxed{12}}{\boxed{10}} = \boxed{1\frac{1}{5}}$$

$$6. \quad \frac{2}{3} + \frac{1}{5} = \frac{\boxed{10}}{\boxed{15}} + \frac{\boxed{3}}{\boxed{15}} = \frac{\boxed{13}}{\boxed{15}} = \boxed{\frac{13}{15}}$$

$$7. \quad \frac{1}{2} + \frac{1}{3} + \frac{1}{6} = \frac{\boxed{3}}{\boxed{6}} + \frac{\boxed{2}}{\boxed{6}} + \frac{\boxed{1}}{\boxed{6}} = \frac{\boxed{6}}{\boxed{6}} = \boxed{1}$$

Unlike Denominators

Subtract. Write each difference in simplest form.

Rewrite with a common denominator, subtract, then simplify.

Example

$$\frac{9}{10} - \frac{2}{5} = \frac{\boxed{9}}{\boxed{10}} - \frac{\boxed{4}}{\boxed{10}} = \frac{\boxed{5}}{\boxed{10}} = \boxed{\frac{1}{2}}$$

$$1. \quad \frac{3}{4} - \frac{1}{8} = \frac{\boxed{6}}{\boxed{8}} - \frac{\boxed{1}}{\boxed{8}} = \frac{\boxed{5}}{\boxed{8}} = \boxed{\frac{5}{8}}$$

$$2. \quad \frac{2}{3} - \frac{1}{2} = \frac{\boxed{4}}{\boxed{6}} - \frac{\boxed{3}}{\boxed{6}} = \frac{\boxed{1}}{\boxed{6}} = \boxed{\frac{1}{6}}$$

$$3. \quad \frac{5}{6} - \frac{1}{4} = \frac{\boxed{10}}{\boxed{12}} - \frac{\boxed{3}}{\boxed{12}} = \frac{\boxed{7}}{\boxed{12}} = \boxed{\frac{7}{12}}$$

$$4. \quad \frac{7}{8} - \frac{1}{6} = \frac{\boxed{21}}{\boxed{24}} - \frac{\boxed{4}}{\boxed{24}} = \frac{\boxed{17}}{\boxed{24}} = \boxed{\frac{17}{24}}$$

$$5. \quad \frac{4}{5} - \frac{1}{3} = \frac{\boxed{12}}{\boxed{15}} - \frac{\boxed{5}}{\boxed{15}} = \frac{\boxed{7}}{\boxed{15}} = \boxed{\frac{7}{15}}$$

$$6. \quad \frac{11}{12} - \frac{2}{3} = \frac{\boxed{11}}{\boxed{12}} - \frac{\boxed{8}}{\boxed{12}} = \frac{\boxed{3}}{\boxed{12}} = \boxed{\frac{1}{4}}$$

$$7. \quad \frac{7}{6} - \frac{3}{4} = \frac{\boxed{14}}{\boxed{12}} - \frac{\boxed{9}}{\boxed{12}} = \frac{\boxed{5}}{\boxed{12}} = \boxed{\frac{5}{12}}$$

Unlike Denominators

Add and subtract mixed numbers. Trade 1 whole when you need to.

Rewrite, then add or subtract. Write answers in simplest form.

Example

Rewrite

$$\begin{array}{r}
 2\frac{3}{4} = 2\frac{9}{12} \\
 + 1\frac{2}{3} = 1\frac{8}{12} \\
 \hline
 3\frac{17}{12} = 4\frac{5}{12}
 \end{array}$$

Example

Rewrite

Trade 1 whole

$$\begin{array}{r}
 5\frac{1}{4} = 5\frac{3}{12} = 4\frac{15}{12} \\
 - 2\frac{2}{3} = 2\frac{8}{12} = 2\frac{8}{12} \\
 \hline
 2\frac{7}{12}
 \end{array}$$

$$\begin{array}{r}
 1. \quad 3\frac{1}{2} = 3\frac{3}{6} \\
 + 2\frac{1}{6} = 2\frac{1}{6} \\
 \hline
 5\frac{4}{6} = 5\frac{2}{3}
 \end{array}$$

$$\begin{array}{r}
 2. \quad 4\frac{1}{6} = 4\frac{2}{12} = 3\frac{14}{12} \\
 - 1\frac{3}{4} = 1\frac{9}{12} = 1\frac{9}{12} \\
 \hline
 2\frac{5}{12}
 \end{array}$$

$$\begin{array}{r}
 3. \quad 2\frac{5}{6} = 2\frac{5}{6} \\
 + 1\frac{1}{2} = 1\frac{3}{6} \\
 \hline
 3\frac{8}{6} = 4\frac{1}{3}
 \end{array}$$

$$\begin{array}{r}
 4. \quad 6\frac{2}{5} = 6\frac{4}{10} = 5\frac{14}{10} \\
 - 3\frac{1}{2} = 3\frac{5}{10} = 3\frac{5}{10} \\
 \hline
 2\frac{9}{10}
 \end{array}$$

Unlike Denominators

Estimate first. Then check that each answer makes sense.

Estimate with 0, $\frac{1}{2}$, and 1. Does each answer make sense?

Example

$$\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$$

Estimate:

$$\frac{1}{2} + \frac{1}{2} = 1$$

Does it make sense?

Yes

No

Why? $\frac{3}{7}$ is less than $\frac{1}{2}$,
but the sum is about 1.

1.

$$\frac{5}{6} - \frac{1}{3} = \frac{1}{2}$$

Estimate:

$$1 - \frac{1}{2} = \frac{1}{2}$$

Does it make sense?

Yes

No

Why? $\frac{1}{2}$ is the same as
the estimate.

2.

$$\frac{7}{8} + \frac{5}{6} = \frac{12}{14}$$

Estimate:

$$1 + 1 = 2$$

Does it make sense?

Yes

No

Why? $\frac{12}{14}$ is less than 1,
but the sum is about 2.

Estimate first. Then solve. Write the answer in simplest form.

Example

Maya walks $\frac{4}{5}$ mile to school.
Then she walks $\frac{2}{3}$ mile to the park. How
far does she walk in all?

Estimate: $1\frac{1}{2}$ $1\frac{7}{15}$ miles

3. A ribbon is $2\frac{1}{2}$ yards long. Sam cuts
off $1\frac{1}{3}$ yards for a bow. How much
ribbon is left?

Estimate: 1 $1\frac{1}{6}$ yards

4. A jug holds $\frac{7}{8}$ liter of juice. Ana
pours $\frac{1}{3}$ liter into a glass. How much
juice is left in the jug?

Estimate: $\frac{1}{2}$ $\frac{13}{24}$ liter

5. Kim has 3 cups of flour. She uses $1\frac{1}{6}$
cups for bread and $\frac{2}{3}$ cup for
muffins. How much flour is left?

Estimate: $1\frac{1}{2}$ $1\frac{1}{6}$ cups