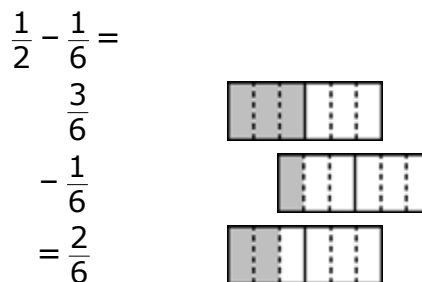


Add and Subtract Fractions

To add fractions with like denominators, add the numerators. Each fraction in the sum is a **proper fraction**, because the denominator is greater than the numerator.

To subtract fractions with unlike denominators, use a **common denominator**. This is a common multiple of the denominators.

Write the answer in lowest terms.



$$\begin{array}{r} \frac{2}{6} \div 2 \\ \hline = \frac{1}{3} \end{array}$$

1. Add. Write each answer in lowest terms.

a) $\frac{1}{6} + \frac{1}{6}$ b) $\frac{1}{2} + \frac{1}{3}$ c) $\frac{3}{10} + \frac{2}{5}$ d) $\frac{4}{9} + \frac{2}{9}$

2. Subtract. Write each answer in lowest terms.

a) $\frac{4}{5} - \frac{3}{10}$ b) $\frac{5}{6} - \frac{1}{6}$ c) $\frac{7}{8} - \frac{5}{8}$ d) $\frac{4}{5} - \frac{2}{3}$

Add and Subtract Mixed Numbers

A **mixed number** includes a whole number and a fraction.

$$\begin{aligned} 1\frac{3}{8} + 2\frac{7}{8} &= 3 + \frac{10}{8} \\ &= 3 + \frac{8}{8} + \frac{2}{8} \text{ Write the } \mathbf{improper\ fraction} \text{ as a mixed number.} \\ &= 3 + 1 + \frac{2}{8} \\ &= 4\frac{1}{4} \\ &= 4\frac{2}{8} \end{aligned}$$

To subtract mixed numbers, use a common denominator.

$$4\frac{1}{2} - 2\frac{3}{4} = 4\frac{2}{4} - 2\frac{3}{4}$$

If the second fraction is bigger than the first, use one of the following methods.

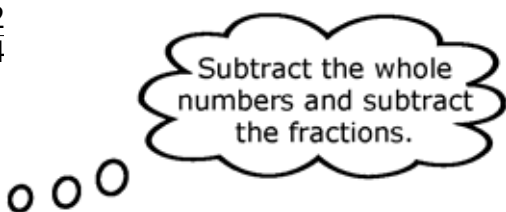
Use an Improper Fraction

$$\begin{aligned} 4\frac{2}{4} - 2\frac{3}{4} &= \frac{18}{4} - \frac{11}{4} \\ &= \frac{7}{4} \\ &= 1\frac{3}{4} \end{aligned}$$

Use Regrouping

Regroup 1 whole from $4\frac{2}{4}$.

$$\begin{aligned} 4\frac{2}{4} &= 3 + \frac{4}{4} + \frac{2}{4} \\ &= 3 + \frac{6}{4} \\ 3\frac{6}{4} - 2\frac{3}{4} &= 1\frac{3}{4} \end{aligned}$$



Subtract the whole numbers and subtract the fractions.

3. Add or subtract. Write each answer in lowest terms.

a) $1\frac{1}{5} + 2\frac{3}{5}$ **b)** $3\frac{1}{4} + 2\frac{3}{4}$

c) $2\frac{3}{5} - 1\frac{2}{5}$ **d)** $4\frac{5}{6} - 2\frac{1}{6}$

e) $4\frac{5}{6} + 3\frac{5}{6}$ **f)** $2\frac{6}{7} + 2\frac{4}{7}$

g) $5\frac{1}{4} - 1\frac{3}{4}$ **h)** $3\frac{1}{6} - 2\frac{5}{6}$

4. Add. Write each answer in lowest terms.

a) $1\frac{1}{2} + 2\frac{1}{3}$ **b)** $3\frac{1}{4} + 1\frac{1}{2}$

c) $1\frac{5}{8} + 2\frac{3}{4}$ **d)** $3\frac{1}{2} + 3\frac{4}{5}$

5. Subtract. Write each answer in lowest terms.

a) $3\frac{1}{2} - 1\frac{1}{3}$ **b)** $3\frac{3}{4} - 1\frac{1}{2}$

c) $2\frac{5}{8} - 1\frac{3}{4}$ **d)** $3\frac{1}{2} - 1\frac{3}{5}$

Order of Operations

The **order of operations** is the correct sequence of steps for a calculation.

$$30 - 14 \div (5 - 3) \times 4 + 6$$

$$= 30 - 14 \div 2 \times 4 + 6$$

$$= 30 - 28 + 6$$

$$= 8$$

Do brackets first.

Multiply and divide, from left to right.

Add and subtract, from left to right.

6. Calculate.

a) $3 - 12 \div 2 + 4$

b) $10 \times 3 - 15 \div 3$

c) $16 \div (3 + 5) - 10 \div 5$

d) $8 + 18 \div 3 - 2 \times (4 + 1)$