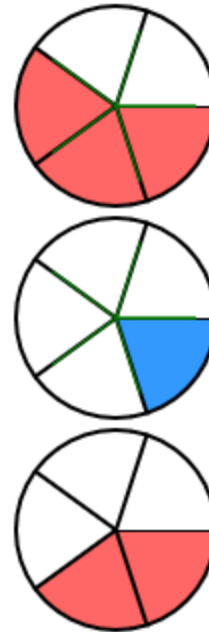# How to Subtract Fractions

Introducing:

- minuend
- subtrahend
- difference

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

minuend   subtrahend

Subtract Fractions 1

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

minuend   subtrahend

This picture shows the *minuend*, *subtrahend*, and *difference*. The *difference* is what remains when the *subtrahend* is removed from the *minuend*.
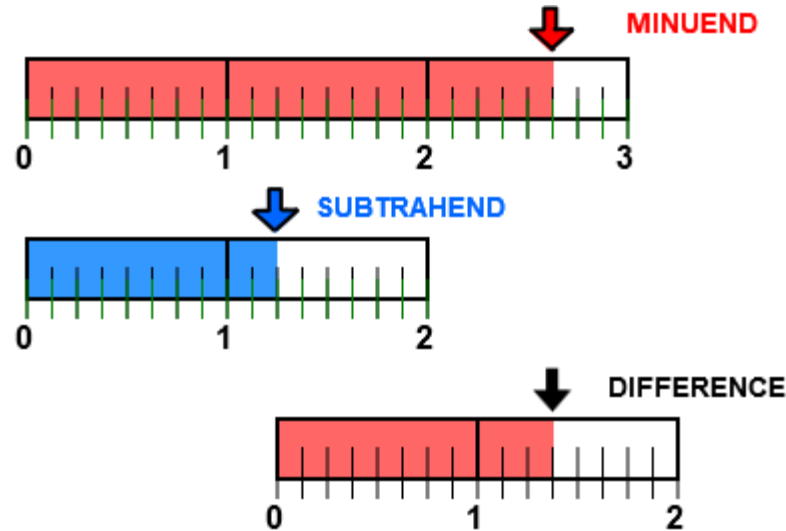
Subtract Fractions 2

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

minuend · · · subtrahend

If the minuend and subtrahend have the same denominator, subtract the numerator of the *subtrahend* from the numerator of the *minuend* to get the numerator of the *difference*.
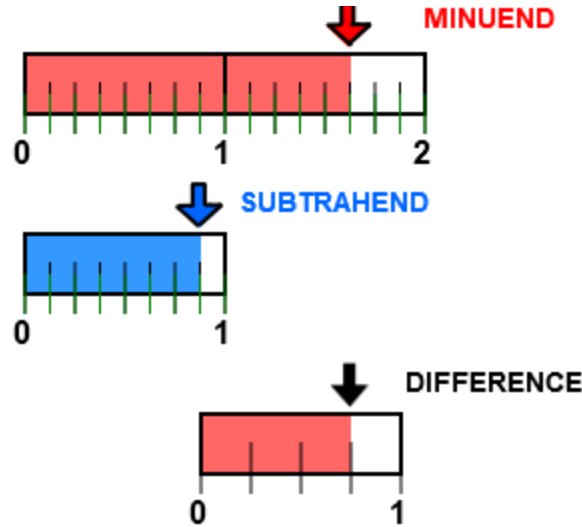
Subtract Fractions 3

$$2 \frac{5}{8} \quad - \quad 1 \frac{2}{8} \quad = \quad 1 \frac{3}{8}$$

minuend   subtrahend

The whole number 1 in 1 $\frac{2}{8}$ is subtracted from the whole number 2 in 2 $\frac{5}{8}$ for a whole number 1 in the *difference*. The fractions $\frac{5}{8}$ and $\frac{2}{8}$ are subtracted for $\frac{3}{8}$ in the *difference*.
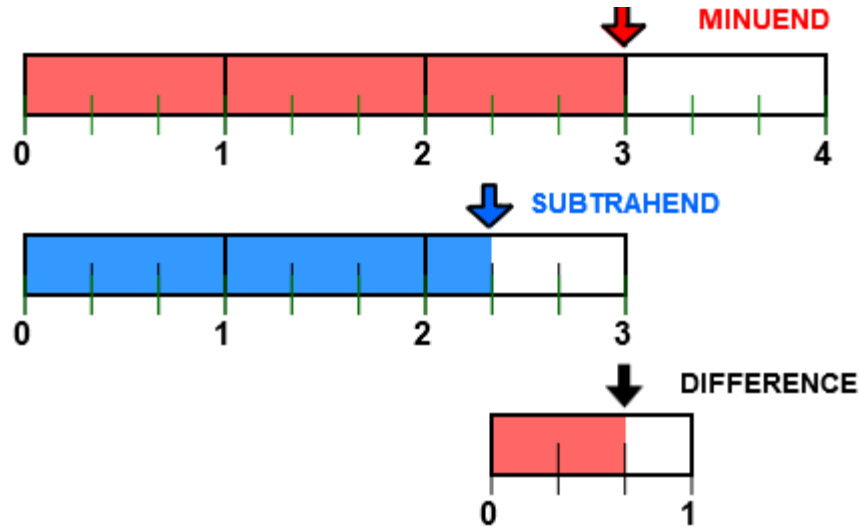
Subtract Fractions 4

$$1\frac{5}{8} \quad - \quad \frac{7}{8} \quad = \quad \frac{13}{8} \quad - \quad \frac{7}{8} \quad = \quad \frac{3}{4}$$

minuend   subtrahend

Here the the *subtrahend* numerator in $^{7}/_{8}$ is larger than the *minuend* numerator in $1\,^{5}/_{8}$. To subtract, the *minuend* is renamed as $^{13}/_{8}$. Now the numerators in $^{13}/_{8}$ and $^{7}/_{8}$ can be subtracted. The *difference* $^{6}/_{8}$ is renamed in lowest terms as $^{3}/_{4}$.
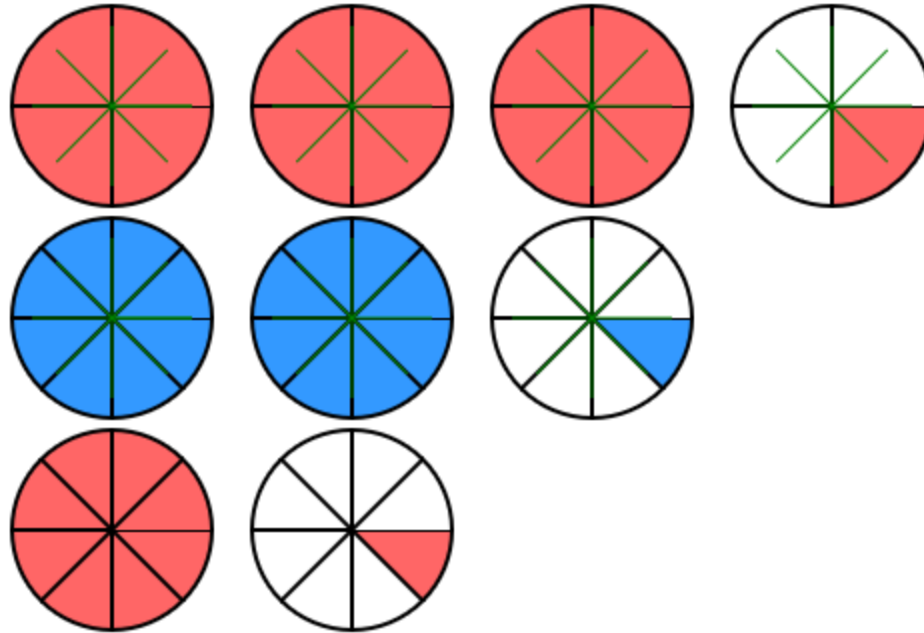
Subtract Fractions 5

The *minuend* 3 is renamed as $2\frac{3}{3}$ so that the numerators can be subtracted. This is done by decreasing the whole number 3 by 1 and renaming the 1 as $\frac{3}{3}$. $3 = 2+1 = 2 + \frac{3}{3}$.
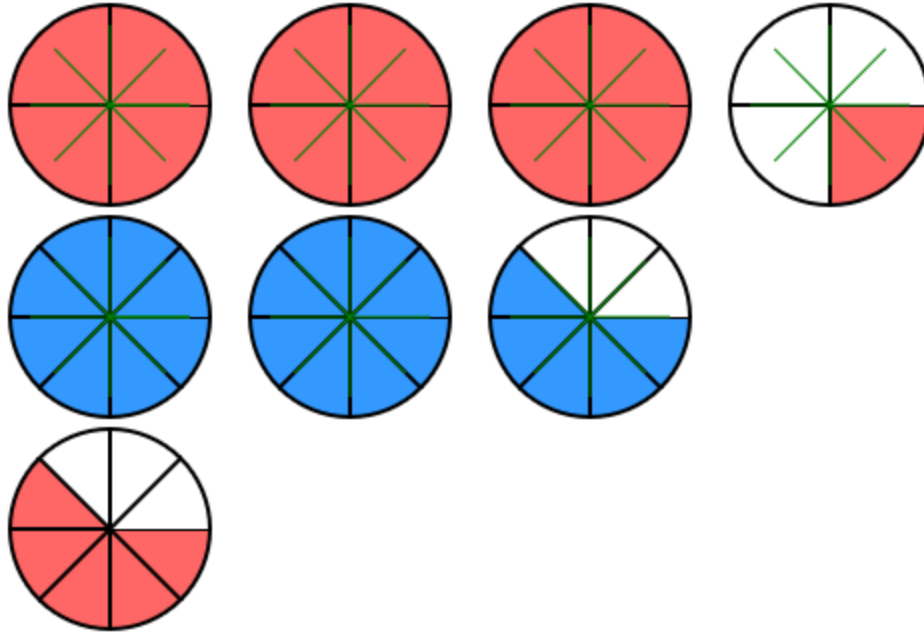
Subtract Fractions 6

$$3 \frac{1}{4} - 2 \frac{1}{8} = 3 \frac{2}{8} - 2 \frac{1}{8} = 1 \frac{1}{8}$$

minuend   subtrahend

Here, unlike fractions are renamed with a common denominator. The *minuend* $3 \frac{1}{4}$ is renamed as $3 \frac{2}{8}$. Then the whole numbers and numerators are subtracted for a *difference* of $1 \frac{1}{8}$.
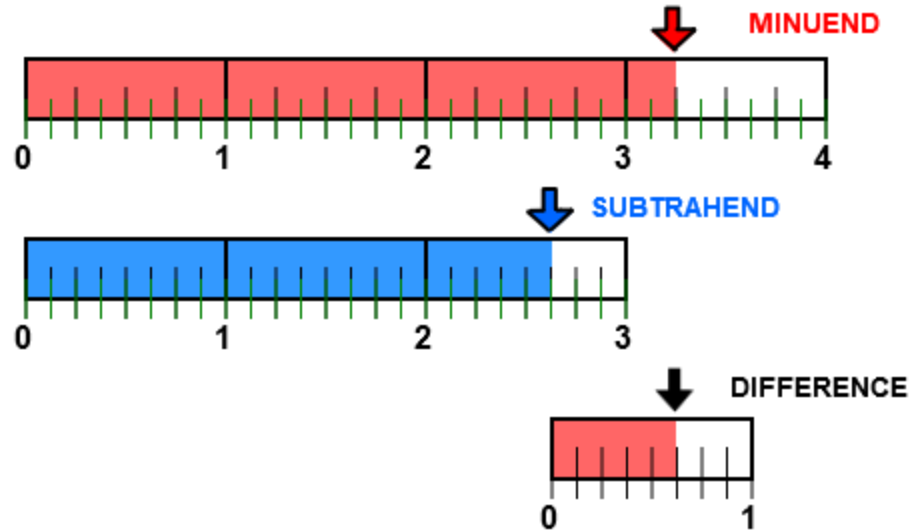
Subtract Fractions 7

Write with common denominator 8 and subtract whole numbers and numerators.

$$3 \frac{1}{4} \quad - \quad 2 \frac{5}{8} \quad = \quad 3 \frac{2}{8} \quad - \quad 2 \frac{5}{8} \quad = \quad 2 \frac{10}{8} \quad - \quad 2 \frac{5}{8} \quad = \quad \frac{5}{8}$$

minuend   subtrahend   rename minuend

$3 \frac{1}{4}$ is renamed as $3 \frac{2}{8}$ to make like fractions. The minuend $3 \frac{2}{8}$ is then renamed as $2 \frac{10}{8}$ so that the numerators can be subtracted.

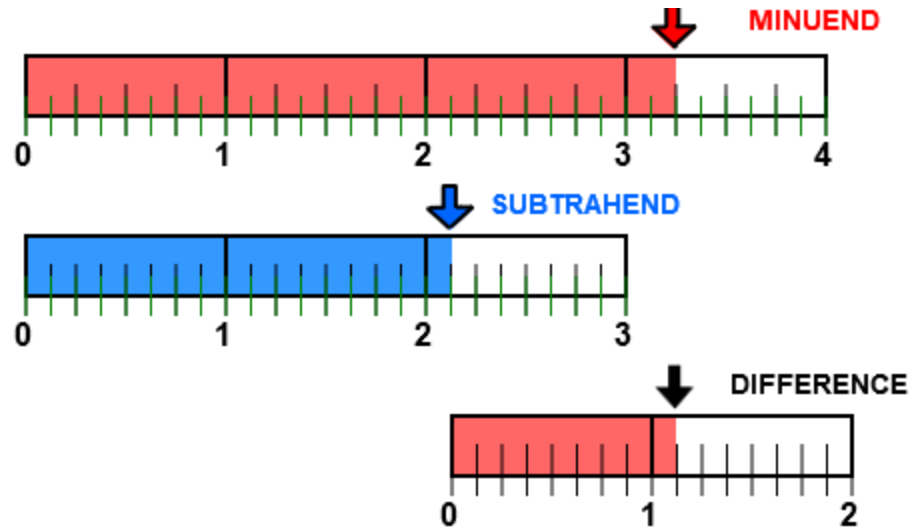$3 \frac{2}{8} = 2 + 1 + \frac{2}{8} = 2 + \frac{8}{8} + \frac{2}{8} = 2 \frac{10}{8}$

Subtract Fractions 8

$$3 \frac{1}{4} \quad - \quad 2 \frac{5}{8} \quad = \quad 3 \frac{2}{8} \quad - \quad 2 \frac{5}{8} \quad = \quad 2 \frac{10}{8} \quad - \quad 2 \frac{5}{8} \quad = \quad \frac{5}{8}$$

minuend   subtrahend   rename minuend

The same example with number lines shows that the *minuend* 3 $\frac{1}{4}$ is $\frac{5}{8}$ larger than the *subtrahend* 2 $\frac{5}{8}$.

Subtract Fractions 9

$$3 \frac{1}{4} - 2 \frac{1}{8} = 3 \frac{2}{8} - 2 \frac{1}{8} = 1 \frac{1}{8}$$
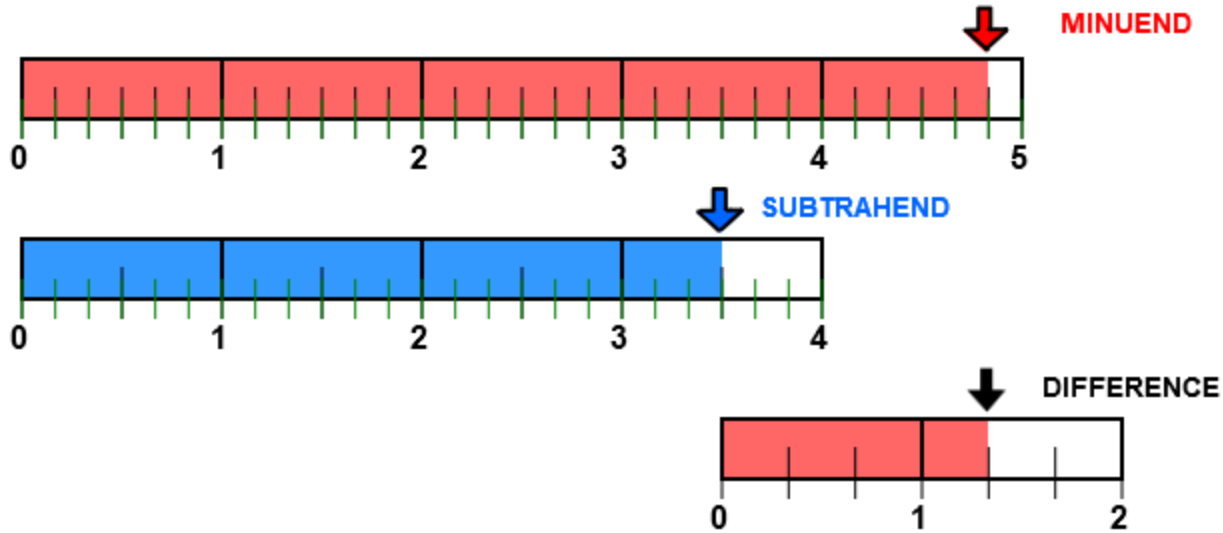
minuend   subtrahend

Decreasing the *subtrahend* to 2 $\frac{1}{8}$ from the previous example increased the *difference* to 1 $\frac{1}{8}$. The smaller the *subtrahend* the larger the *difference*.

Subtract Fractions 10

$$4 \frac{5}{6} \quad - \quad 3 \frac{1}{2} \quad = \quad ?$$

Find the *difference* between 4 $^5/_6$ and 3 $^1/_2$

Subtract Fractions 11

Write with common denominator 6 and subtract whole numbers and numerators.

$$4 \frac{5}{6} \quad - \quad 3 \frac{1}{2} \quad = \quad 4 \frac{5}{6} \quad - \quad 3 \frac{3}{6} \quad = \quad 1 \frac{1}{3}$$

minuend   subtrahend

Subtract Fractions 12

$$4\,\frac{1}{2}\quad-\quad 3\,\frac{5}{6}\quad=\quad ?$$

Find the *difference* between 4 $^1/_2$ and 3 $^5/_6$.

Subtract Fractions 13

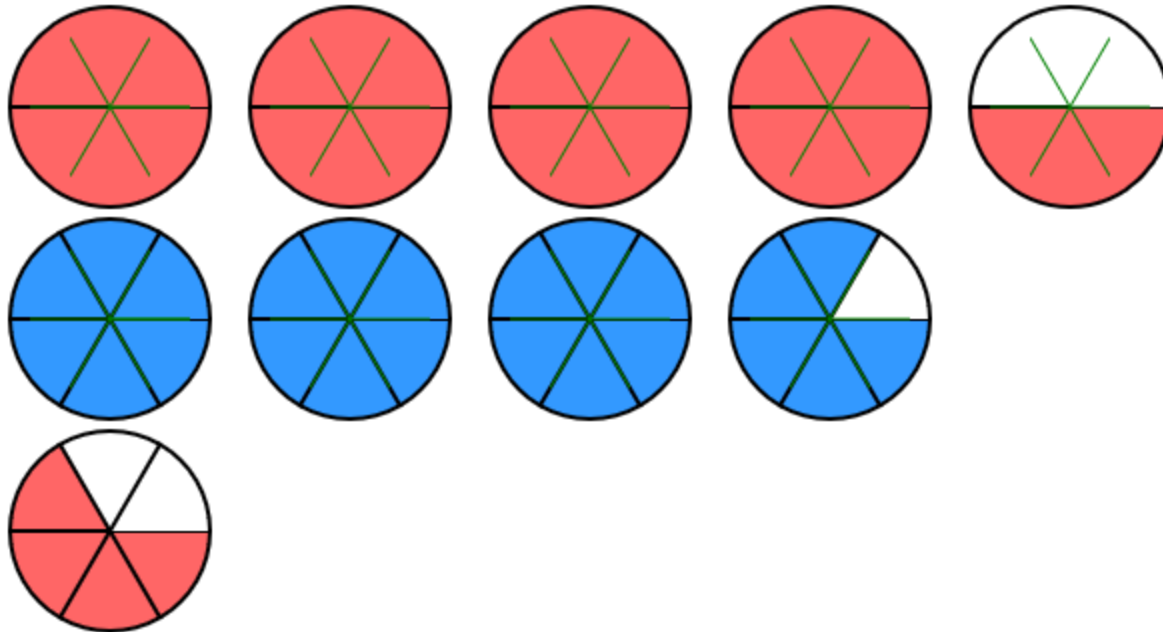Write with common denominator 6 and subtract whole numbers and numerators.

$$4 \frac{1}{2} \quad - \quad 3 \frac{5}{6} \quad = \quad 4 \frac{3}{6} \quad - \quad 3 \frac{5}{6} \quad = \quad 3 \frac{9}{6} \quad - \quad 3 \frac{5}{6} \quad = \quad \frac{2}{3}$$

minuend   subtrahend   rename minuend