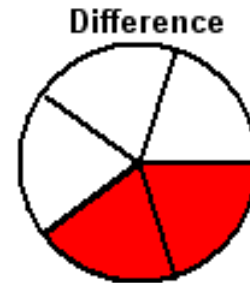


HOW TO SUBTRACT FRACTIONS

Introducing:

- minuend
- subtrahend
- difference



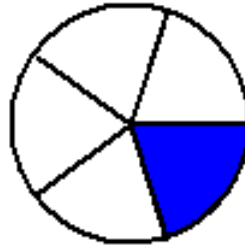
$$\frac{3}{5} - \frac{1}{5} = \frac{2}{5}$$

Subtract Fractions 1

Minuend



Subtrahend



Difference



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

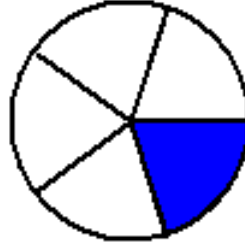
This picture shows the *minuend*, *subtrahend*, and *difference*. The *difference* is what remains when the *subtrahend* is removed from the *minuend*.

Subtract Fractions 2

Minuend



Subtrahend



Difference

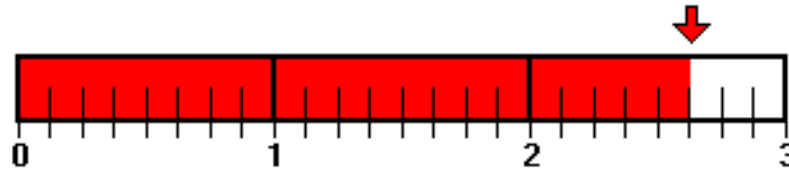


$$\frac{3}{5} - \frac{1}{5} = \frac{2}{5}$$

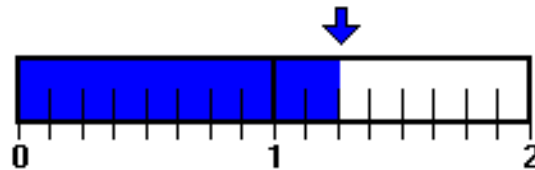
If the minuend and subtrahend have the same denominator, subtract the numerator of the *subtrahend* from the numerator of the *minuend* to get the numerator of the *difference*.

Subtract Fractions 3

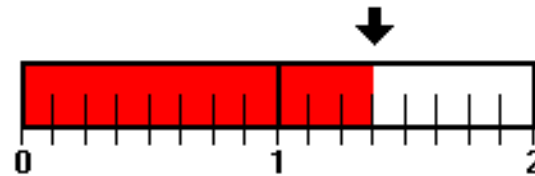
Minuend



Subtrahend



Difference

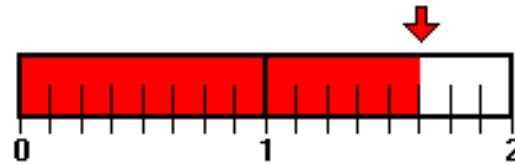


$$2 \frac{5}{8} - 1 \frac{2}{8} = 1 \frac{3}{8}$$

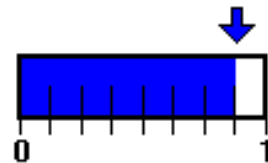
The whole number 1 in $1 \frac{2}{8}$ is subtracted from the whole number 2 in $2 \frac{5}{8}$ for a whole number 1 in the *difference*. The fractions $\frac{5}{8}$ and $\frac{2}{8}$ are subtracted for $\frac{3}{8}$ in the *difference*.

Subtract Fractions 4

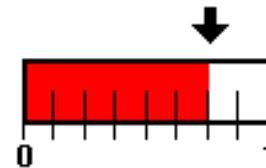
Minuend



Subtrahend



Difference

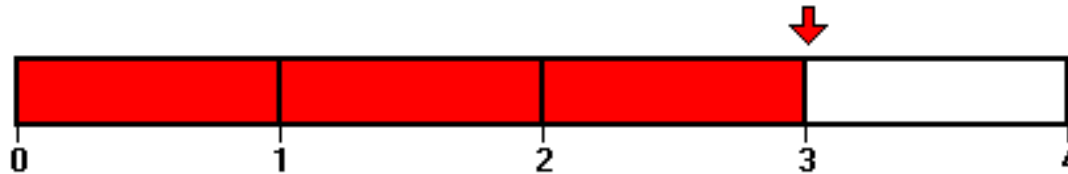


$$1 \frac{5}{8} - \frac{7}{8} = \frac{13}{8} - \frac{7}{8} = \frac{6}{8} = \frac{3}{4}$$

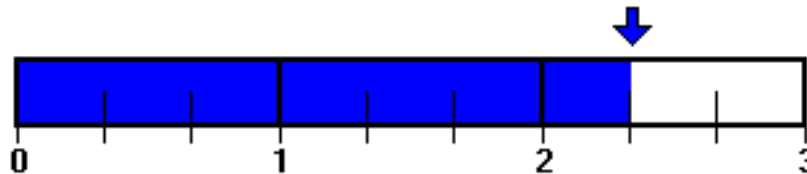
Here the the *subtrahend* numerator in $\frac{7}{8}$ is larger than the *minuend* numerator in $1 \frac{5}{8}$. To subtract, the *minuend* is renamed as $\frac{13}{8}$. Now the numerators in $\frac{13}{8}$ and $\frac{7}{8}$ can be subtracted. The *difference* $\frac{6}{8}$ is renamed in lowest terms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

Subtract Fractions 5

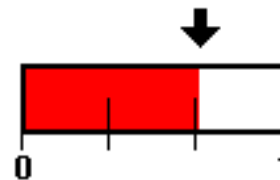
Minuend



Subtrahend



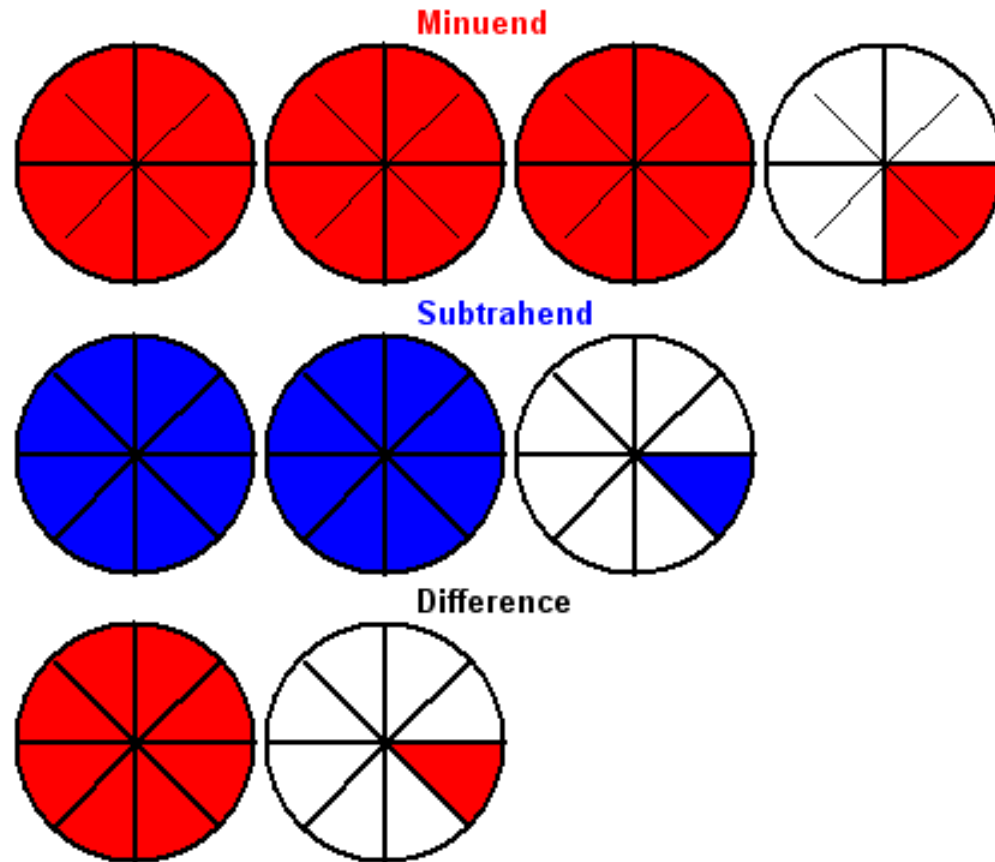
Difference



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

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 to 2 and renaming the 1 as $\frac{3}{3}$. $3 = 2+1 = 2 + \frac{3}{3}$.

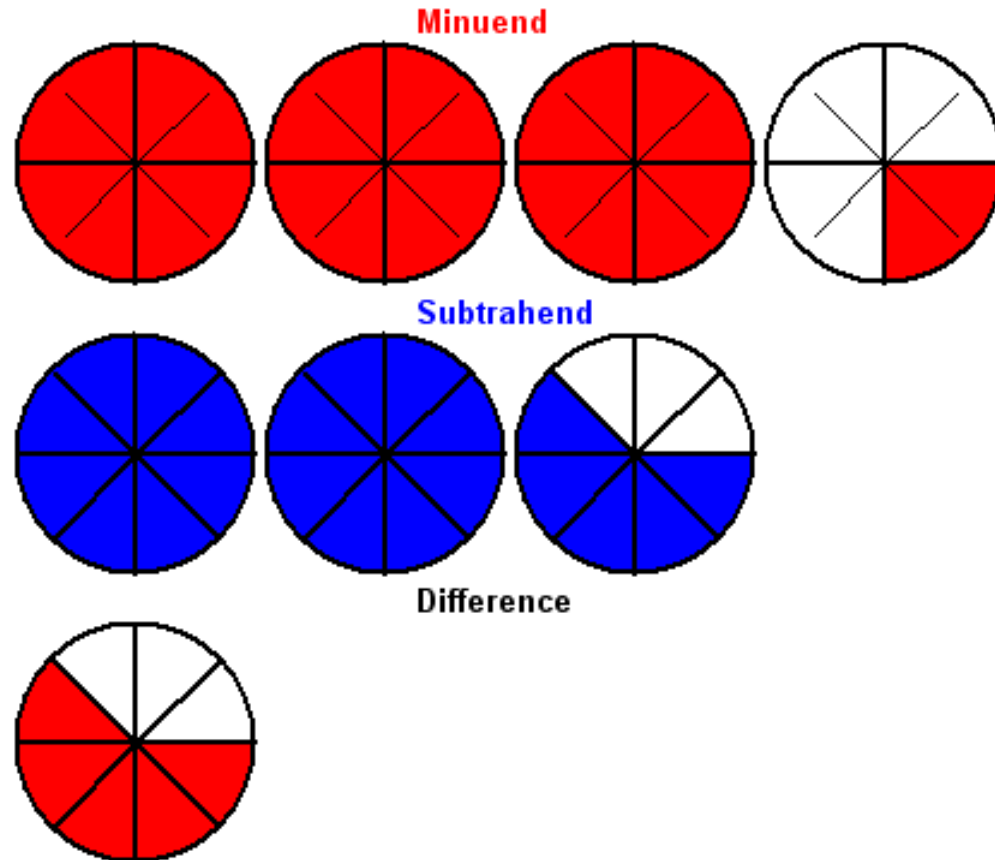
Subtract Fractions 6



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

Here, unlike fractions are renamed as like fractions. 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



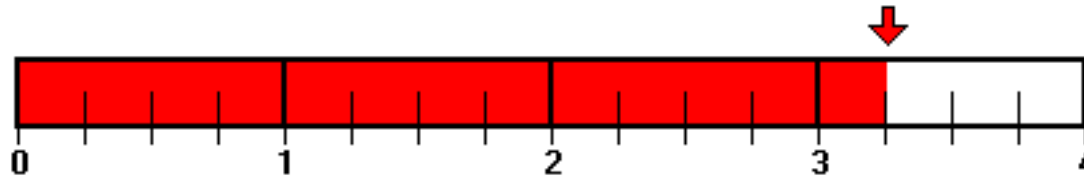
$$3 \frac{1}{4} - 2 \frac{5}{8} = 3 \frac{2}{8} - 2 \frac{5}{8} = 2 \frac{10}{8} - 2 \frac{5}{8} = \frac{5}{8}$$

$3 \frac{1}{4}$ 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.

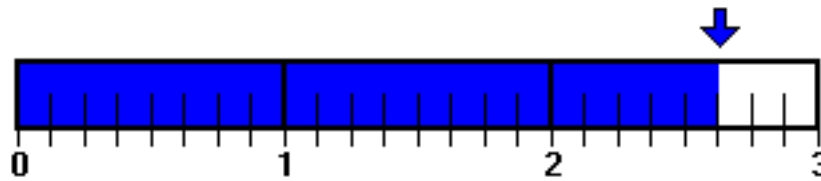
$$3 \frac{2}{8} = 2 + 1 + \frac{2}{8} = 2 + \frac{8}{8} + \frac{2}{8} = 2 \frac{10}{8}$$

Subtract Fractions 8

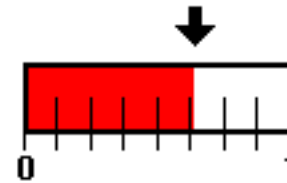
Minuend



Subtrahend



Difference

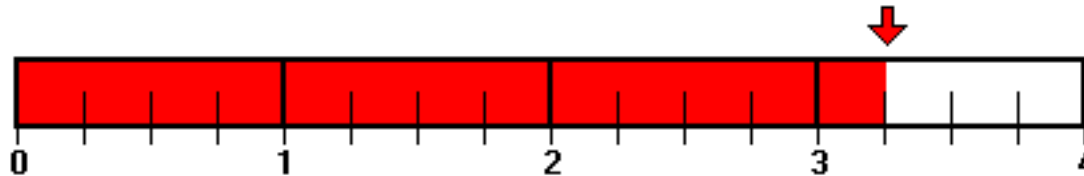


$$3 \frac{1}{4} - 2 \frac{5}{8} = 3 \frac{2}{8} - 2 \frac{5}{8} = 2 \frac{10}{8} - 2 \frac{5}{8} = \frac{5}{8}$$

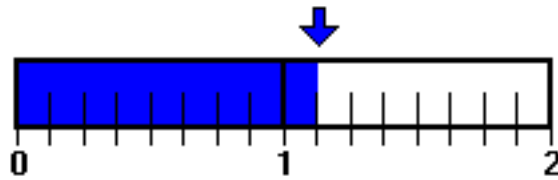
The same example with number lines shows that the *minuend* $3 \frac{1}{4}$ is $\frac{5}{8}$ larger than the *subtrahend* $2 \frac{5}{8}$.

Subtract Fractions 9

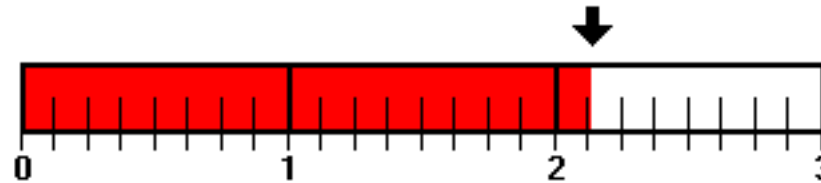
Minuend



Subtrahend



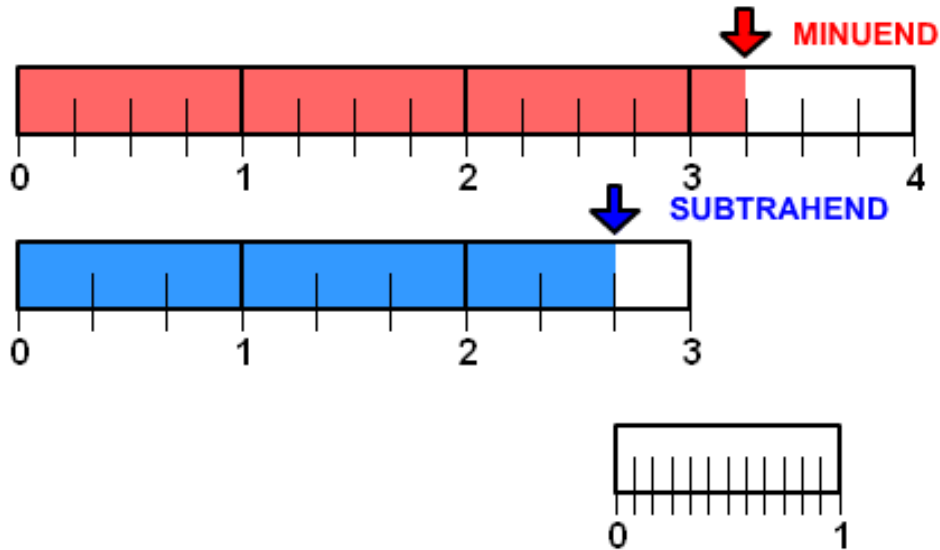
Difference



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

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

Subtract Fractions 10

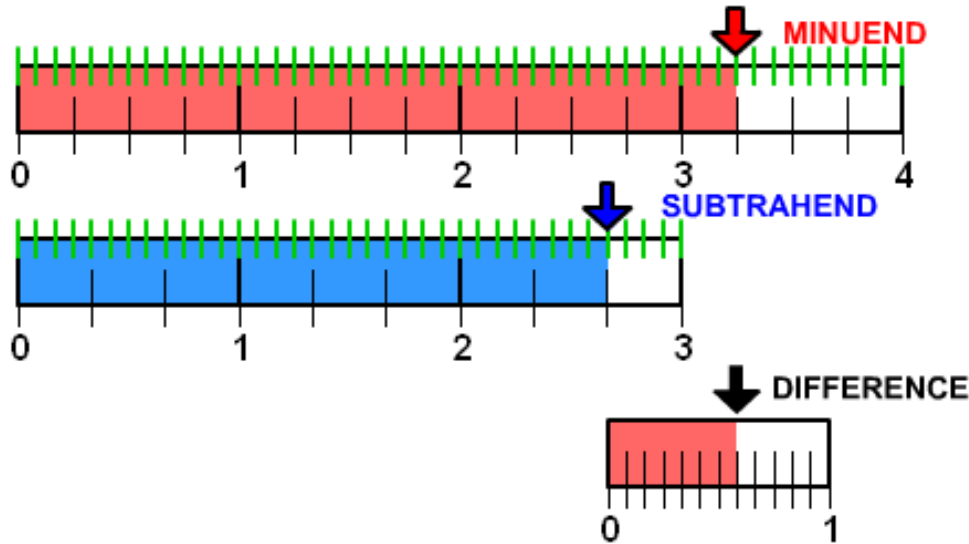


$$3 \frac{1}{4} - 2 \frac{2}{3}$$

minuend **subtrahend**

What is the *difference* of $3 \frac{1}{4}$ and $2 \frac{2}{3}$?

Subtract Fractions 11



$$\begin{array}{ccccccc}
 3 \frac{1}{4} & - & 2 \frac{2}{3} & = & 3 \frac{3}{12} & - & 2 \frac{8}{12} & = & 2 \frac{15}{12} & - & 2 \frac{8}{12} & = & \frac{7}{12} \\
 \text{minuend} & & \text{subtrahend} & & \text{Write with a common} & & & & \text{Rename minuend} & & & & \text{Subtract and simplify} \\
 & & & & \text{denominator} & & & & & & & &
 \end{array}$$

The *difference* of $3 \frac{1}{4}$ and $2 \frac{2}{3}$ is the distance from the end of the subtrahend to the end of the minuend. To find the difference from the image go straight down from the minuend number line onto the difference number line.

The image shows how the difference is calculated