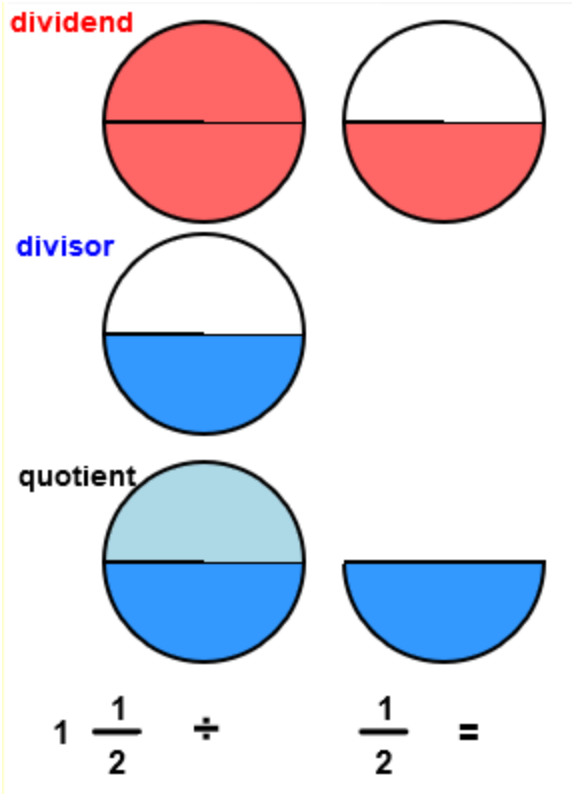
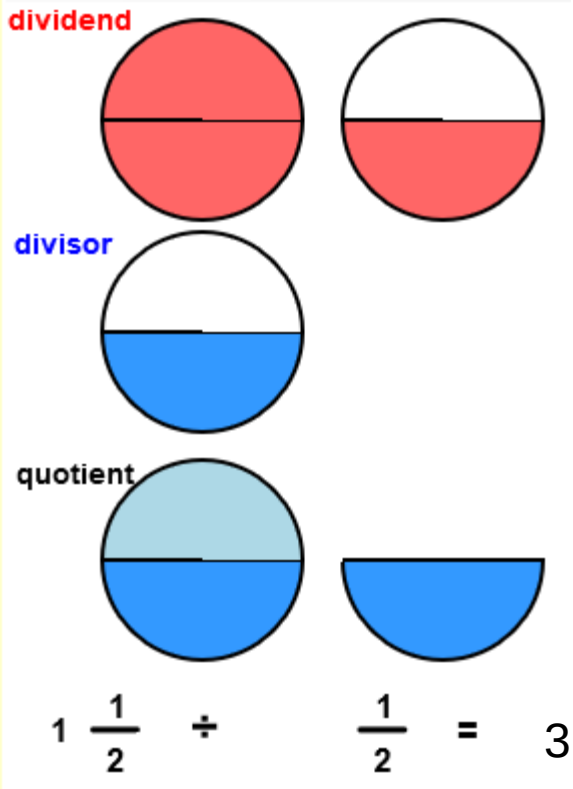
HOW TO DIVIDE FRACTIONS

Introducing:

- dividend
- divisor
- quotient

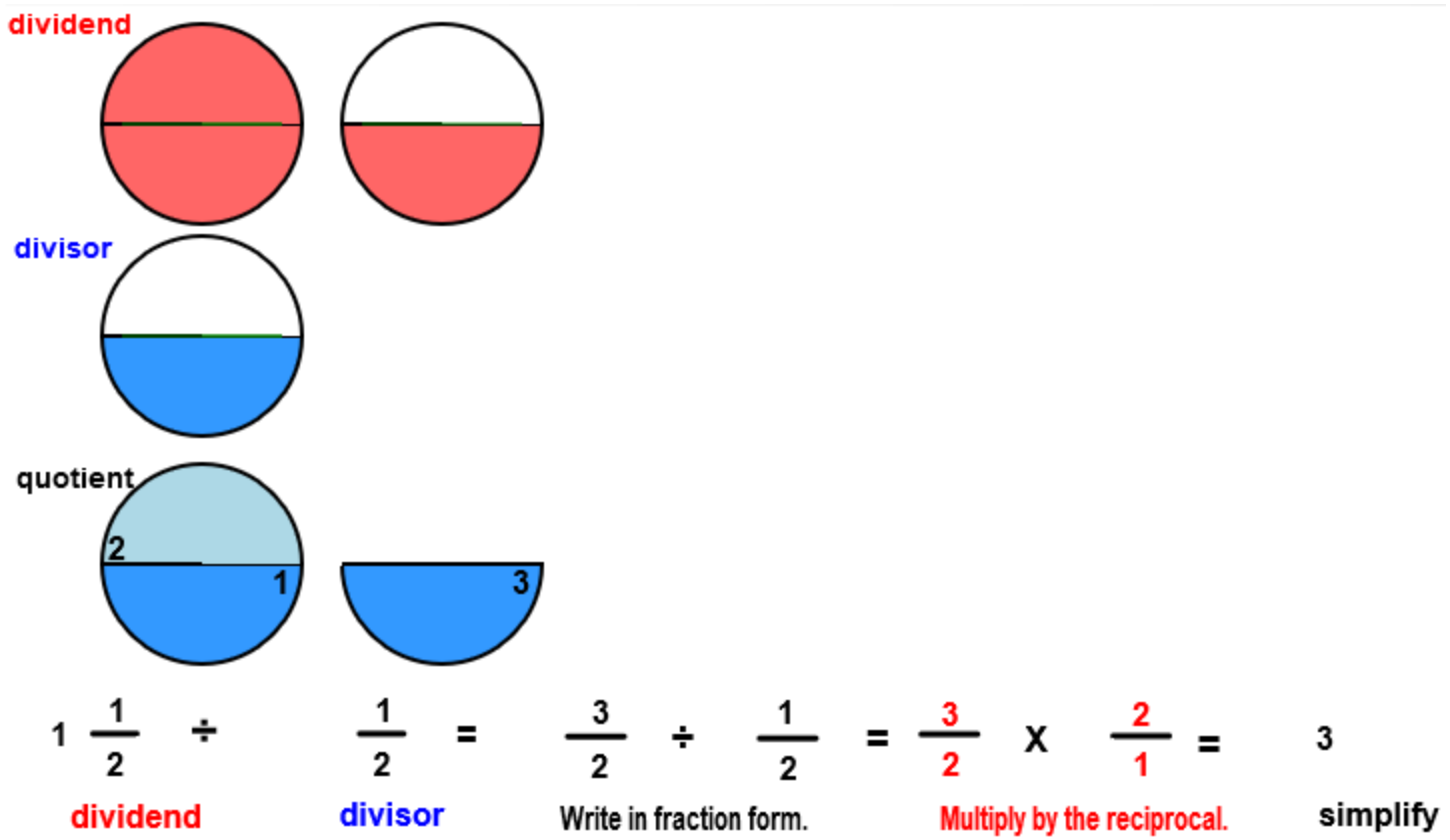


Divide Fractions 1



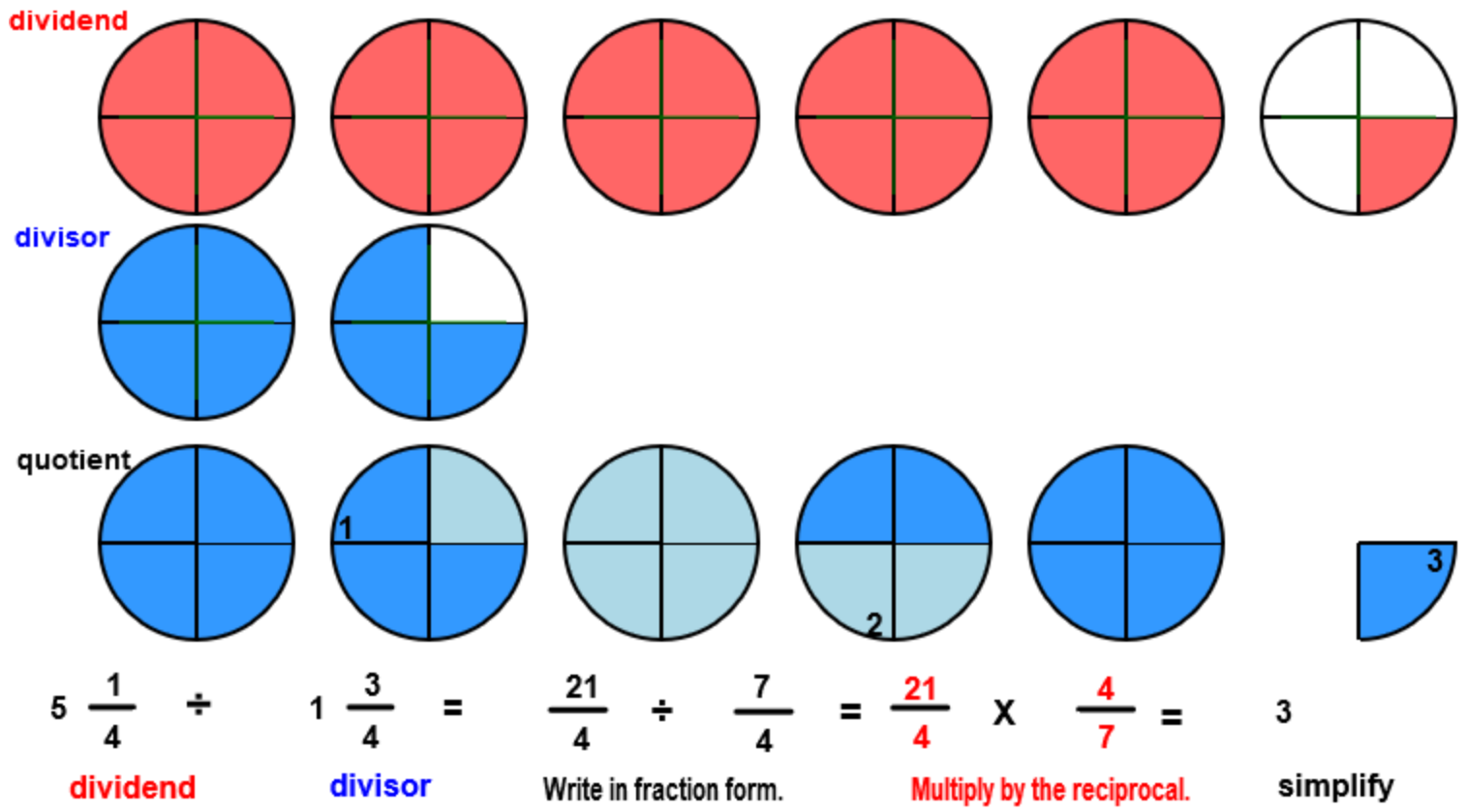
Division is a form of subtraction. This picture shows that the *divisor* $^1/_2$ can be subtracted 3 times from the *dividend* 1 $^1/_2$. A *quotient* 3 tells us how many times the *divisor* can be subtracted from the *dividend*.

Divide Fractions 2



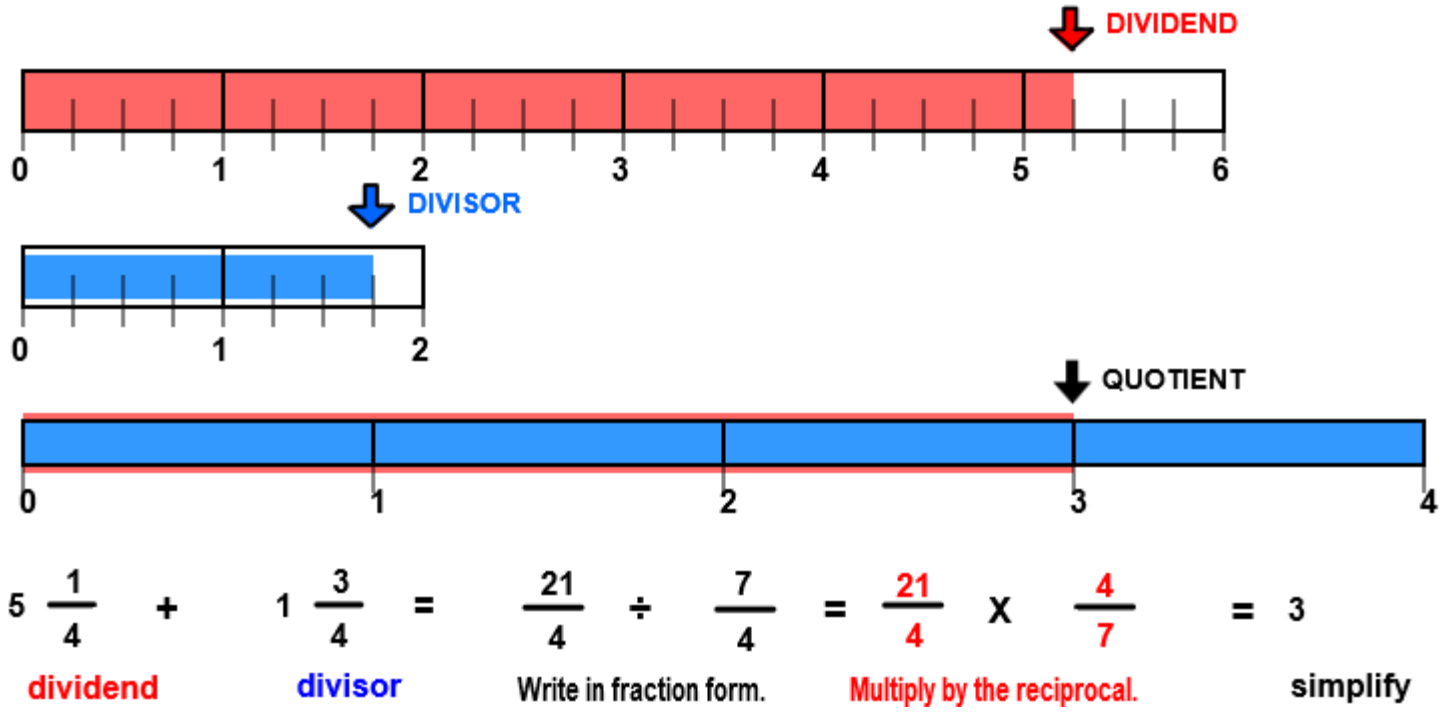
To calculate the *quotient*, first write the *dividend* and *divisor* in fraction form. Then multiply $^{3}/_{2}$ by the inverse of $^{1}/_{2}$. This gives a *quotient* of $^{3}/_{2} \times {}^{2}/_{1}$ or 3.

Divide Fractions 3



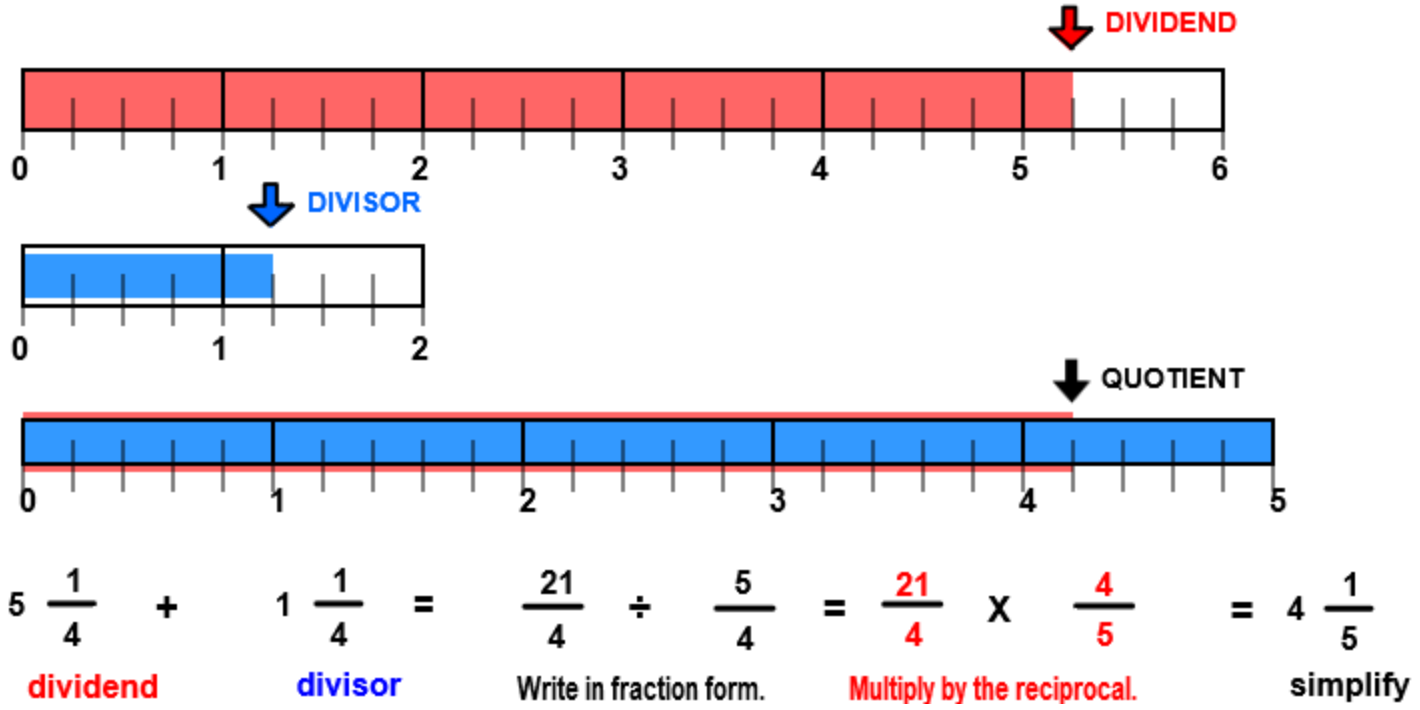
This picture shows that $1\ ^{3}/_{4}$ can be subtracted from $5\ ^{1}/_{4}$ three times.

Divide Fractions 4



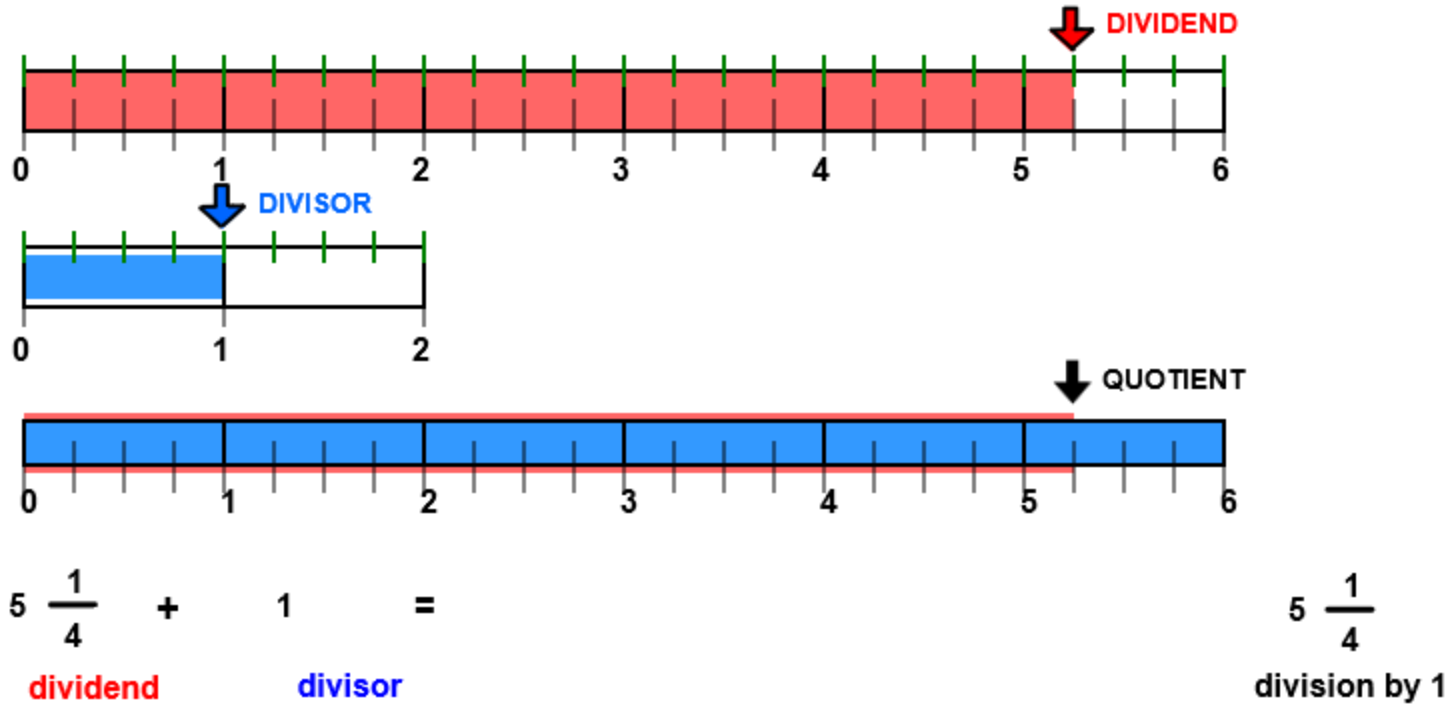
The same example with number lines shows that $1\ ^{3}/_{4}$ fits into $5\ ^{1}/_{4}$ three times.

Divide Fractions 5



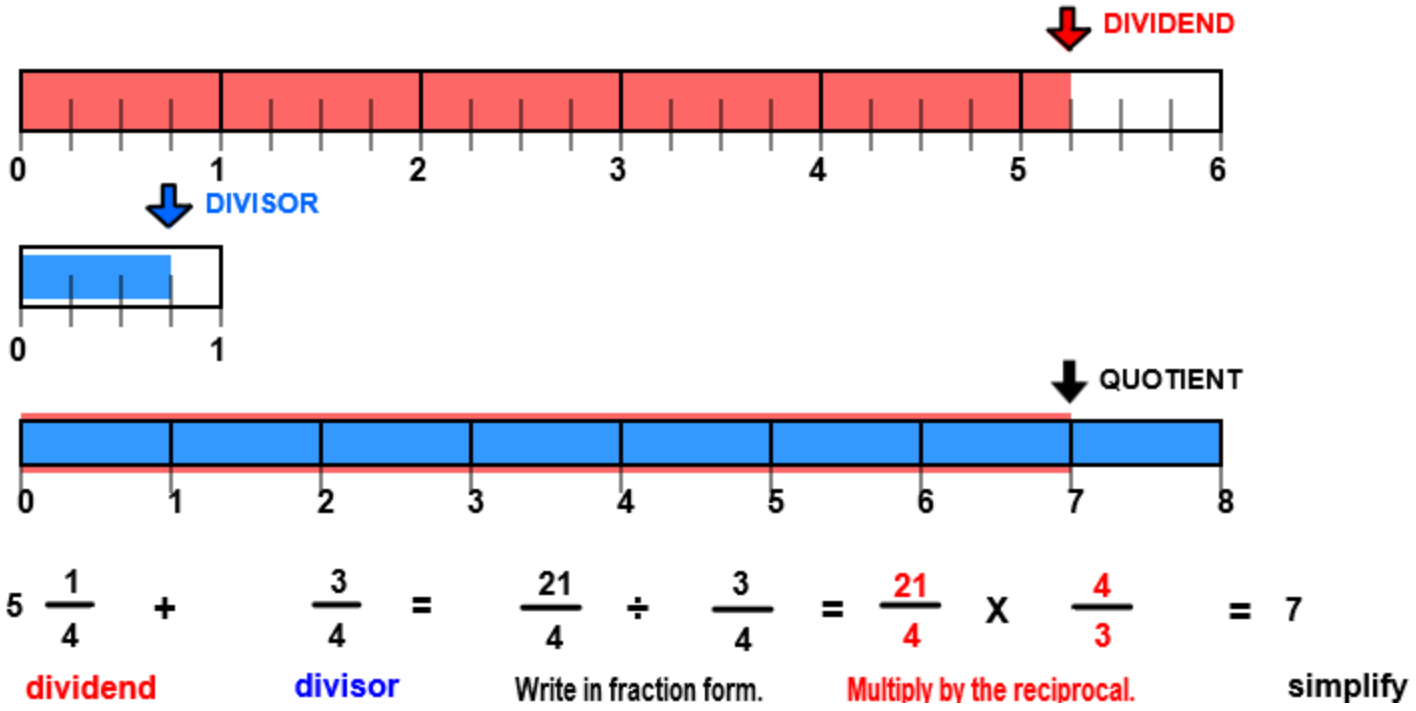
The *divisor* has been decreased to $1\ ^1/_4$. Notice the *quotient* is increased to $4^1/_5$. As the *divisor* decreases, the *quotient* increases.

Divide Fractions 6



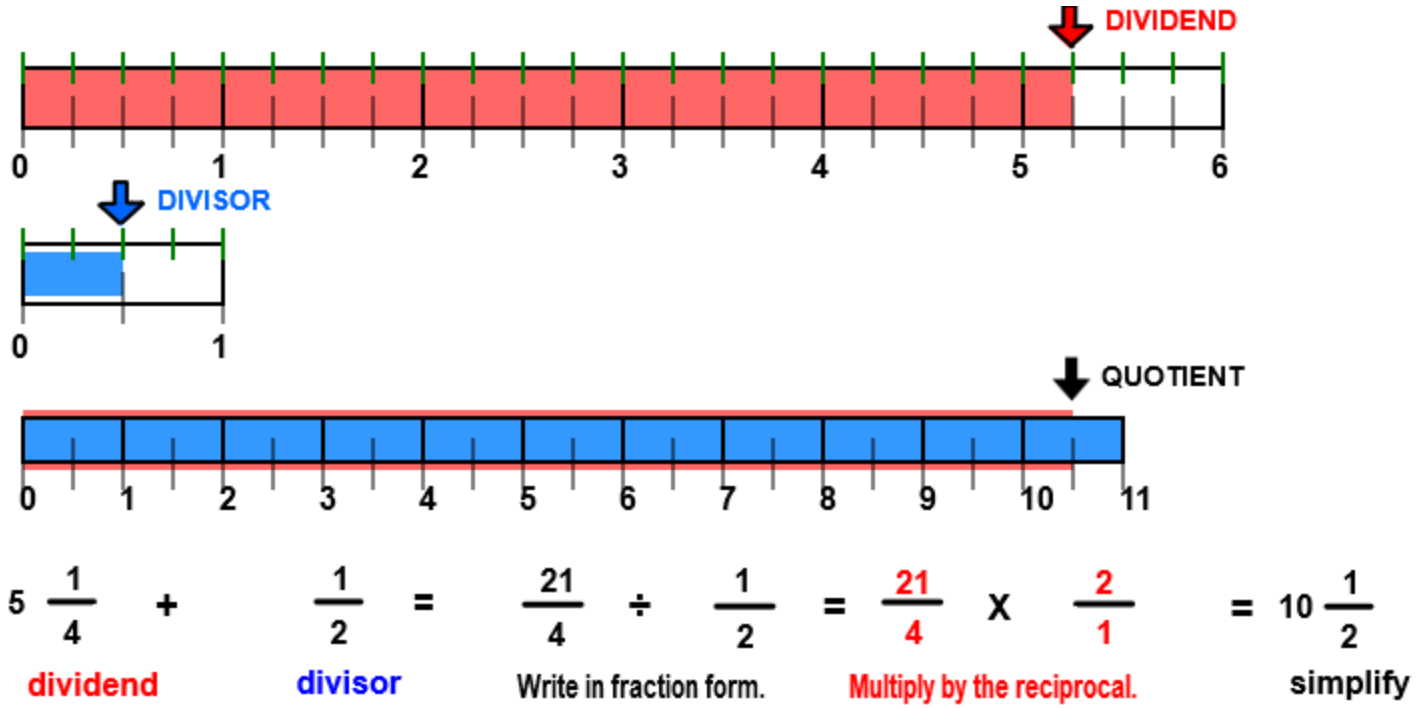
The *divisor* has been decreased to 1. Notice the *quotient* is increased to $5^{1}/_{4}$. Dividing by 1 gives a *quotient* equal to the *dividend*.

Divide Fractions 7



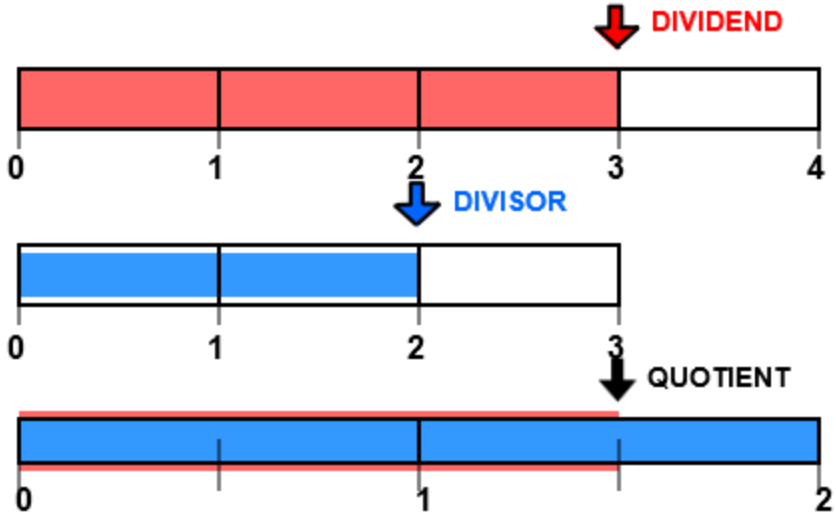
When the *divisor* is less than 1, the *quotient* is larger than the *dividend*.

Divide Fractions 8



Decreasing the *divisor* to $^1/_2$ increases the *quotient* to 10 $^1/_2$.

Divide Fractions 9

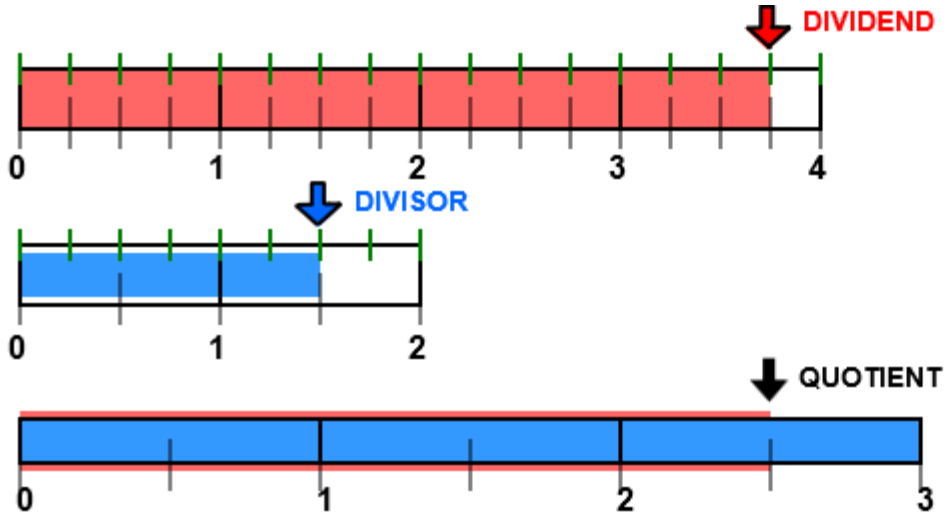


$3 \quad + \quad 2 \quad = \quad \frac{3}{1} \div \frac{2}{1} = \frac{3}{1} \times \frac{1}{2} = 1\frac{1}{2}$

dividend divisor Write in fraction form. Multiply by the reciprocal. simplify

When the *divisor* is smaller than the *dividend*, the *quotient* is more than 1.

Divide Fractions 10

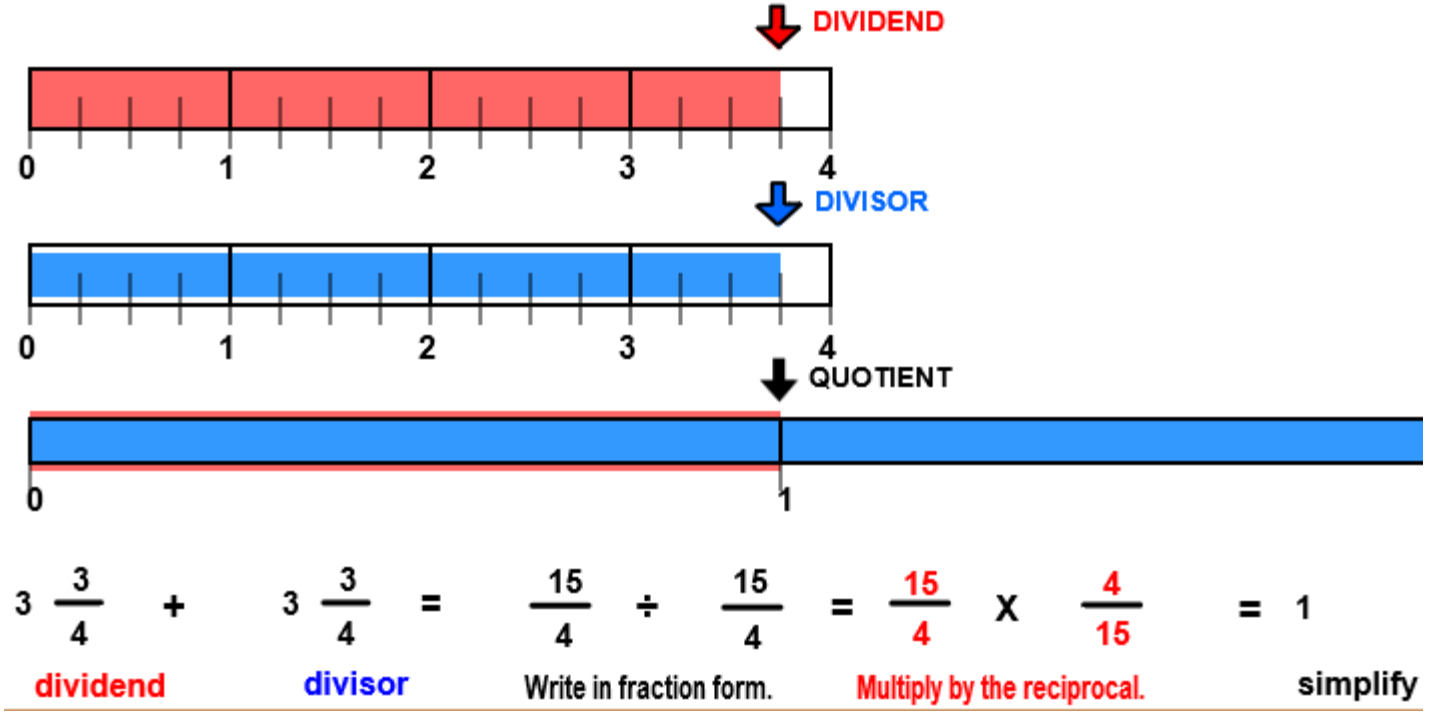


$3\frac{3}{4} + 1\frac{1}{2} = \frac{15}{4} \div \frac{3}{2} = \frac{15}{4} \times \frac{2}{3} = 2\frac{1}{2}$

dividend | divisor | Write in fraction form. | Multiply by the reciprocal. | simplify

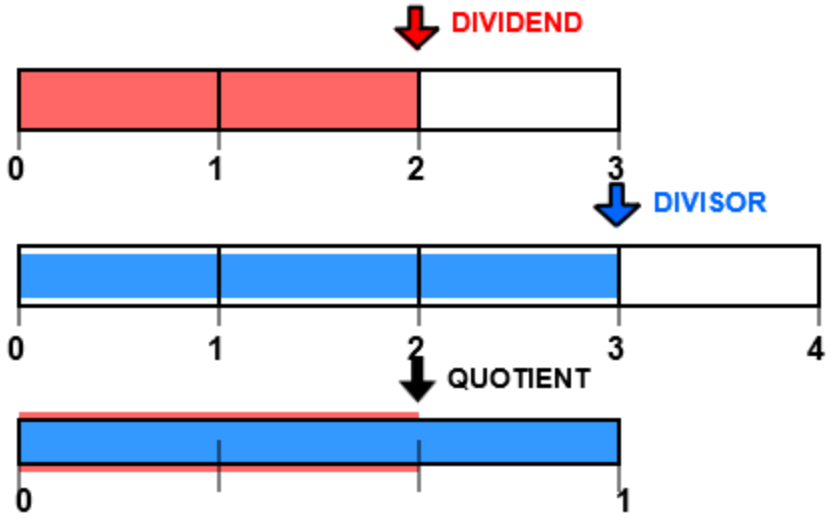
Another example where the *divisor* smaller than the *dividend*.

Divide Fractions 11



When the *divisor* is the same size as the *dividend*, the *quotient* is 1.

Divide Fractions 12

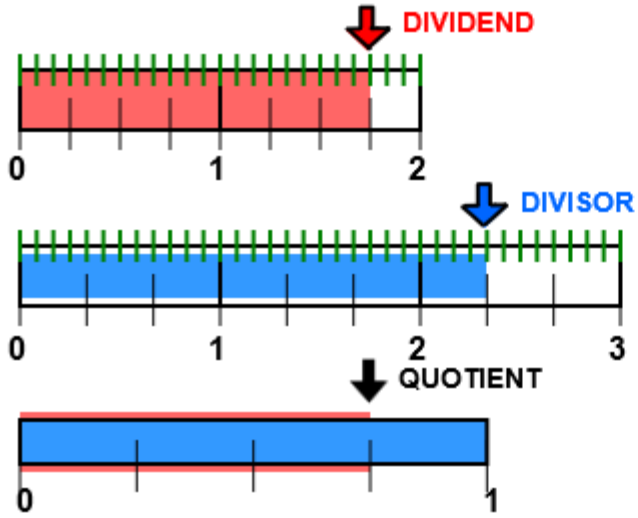


$2 \quad + \quad 3 \quad = \quad \frac{2}{1} \quad \div \quad \frac{3}{1} \quad = \quad \frac{2}{1} \quad \times \quad \frac{1}{3} \quad = \quad \frac{2}{3}$

dividend divisor Write in fraction form. Multiply by the reciprocal. simplify

When the *divisor* is larger than the *dividend*, the *quotient* is less than 1.

Divide Fractions 13



$1\frac{3}{4} + 2\frac{1}{3} = \frac{7}{4} \div \frac{7}{3} = \frac{7}{4} \times \frac{3}{7} = \frac{3}{4}$

dividend divisor Write in fraction form. Multiply by the reciprocal. simplify

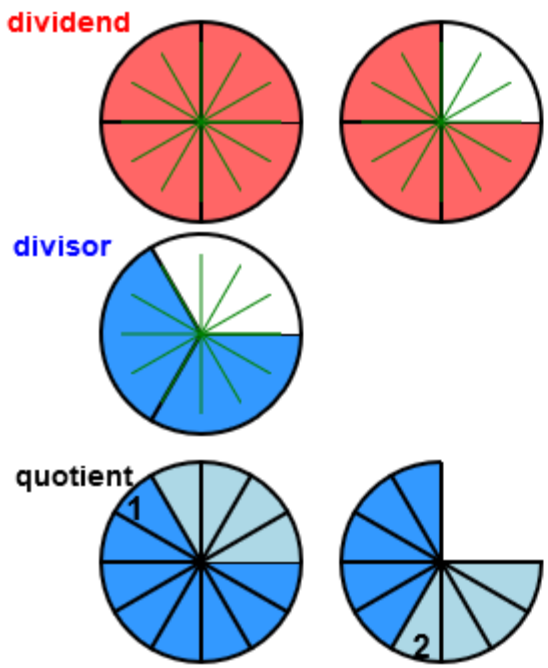
Another example where the *divisor* is larger than the *dividend*.

Divide Fractions 14

What is the *quotient* of $1\ {}^{3}/_{4}$ divided by ${}^{2}/_{3}$?

$$1\ {}^{3}/_{4} \div\ {}^{2}/_{3} = ?$$

Divide Fractions 15



$1\frac{3}{4} \div \frac{2}{3} = \frac{7}{4} \div \frac{2}{3} = \frac{7}{4} \times \frac{3}{2} = 2\frac{5}{8}$

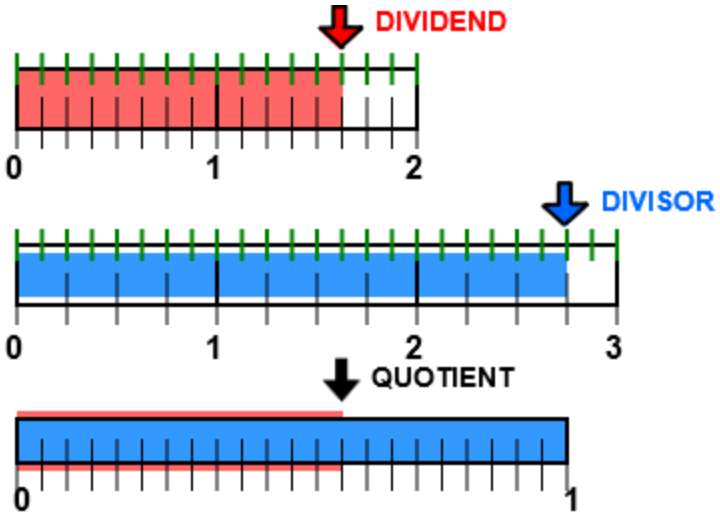
dividend | divisor | Write in fraction form. | Multiply by the reciprocal. | simplify

Divide Fractions 16

What is the *quotient* of $1\ {}^{5}/_{8}$ divided by $2\ {}^{3}/_{4}$?

$$1\ {}^{5}/_{8} \div\ 2\ {}^{3}/_{4} = ?$$

Divide Fractions 17



$$1\frac{5}{8} + 2\frac{3}{4} = \frac{13}{8} \div \frac{11}{4} = \frac{13}{8} \times \frac{4}{11} = \frac{13}{22}$$

dividend | divisor | Write in fraction form. | Multiply by the reciprocal. | simplify