

Learning Outcome:

Students should be able to multiply & divide fractions and interpreting division as a multiplicative inverse

MULTIPLYING FRACTIONS

Remember!

1. Multiply
2. Multiply
3. Simplify

Step 1: Write whole number as fraction; write mixed number as improper fraction.

$$\frac{2}{3} \times \frac{3}{4}$$

$$\frac{9}{1} \times \frac{2}{5}$$

$$\frac{2}{3} \times \frac{1}{3}$$

Step 2: Multiply the numerators

$$\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$$

$$\frac{9}{1} \times \frac{2}{5} = \frac{18}{5}$$

$$\frac{2}{3} \times \frac{7}{3} = \frac{14}{9}$$

Step 3: Multiply the denominators

$$\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$$

$$\frac{9}{1} \times \frac{2}{5} = \frac{18}{5}$$

$$\frac{2}{3} \times \frac{7}{3} = \frac{14}{9}$$

Step 4: Write answer in simplest terms

$$\frac{6}{12} = \frac{1}{2}$$

$$\frac{18}{5} = \frac{3}{5}$$

$$\frac{14}{9} = \frac{1}{9}$$

DIVIDING FRACTIONS**Remember!**

Keep	Change	Flip
First fraction stays the same	Operation changes from + to x	Flip 2nd fraction for reciprocal

Step 1: Write whole number as fraction; write mixed number as improper fraction.

$$\frac{2}{3} \div \frac{1}{3}$$

$$\frac{9}{1} \div \frac{1}{3}$$

$$\frac{2}{3} \div \frac{1}{3}$$

Step 2: Find the reciprocal of the divisor (the number you are dividing by).

$$\frac{2}{3} \div \frac{3}{1}$$

$$\frac{9}{1} \div \frac{3}{1}$$

$$\frac{2}{3} \div \frac{3}{1}$$

Step 3: The reciprocal allows you to change the operation from division to multiplication.

$$\frac{2}{3} \times \frac{3}{1}$$

$$\frac{9}{1} \times \frac{3}{1}$$

$$\frac{2}{3} \times \frac{3}{1}$$

Step 4: Multiply the fractions.

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

$$\frac{9}{1} \times \frac{3}{1} = \frac{27}{1}$$

$$\frac{2}{3} \times \frac{3}{1} = \frac{6}{21}$$

Step 5: Write the answer in simplest terms.

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

$$\frac{27}{1} = 27$$

$$\frac{6}{21} = \frac{2}{7}$$

Example 21

(a) $2 \times 1\frac{1}{3}$

Change mixed number into improper fraction and solve

$$2 \times \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$

Change improper fraction into mixed number for your final answer.

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

REMEMBER

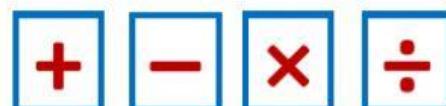
Please copy the step-by-step workings and answers into your notes.

Example 21

(b) $\frac{1}{3}$ of $\frac{1}{4}$

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

What is " of " ?



Choose and drag any of these
maths operations that will
define the word "of"



K eep	C hange	F lip
1 st fraction stays the same	Operation changes from ÷ to ×	Flip 2 nd fraction for reciprocal

(c) $\frac{1}{4} \div \frac{3}{10}$

$$\frac{\boxed{\quad}}{\boxed{\quad}} \times \frac{\boxed{\quad}}{\boxed{\quad}} = \frac{\boxed{\quad}}{\boxed{\quad}}$$



**Please copy the step-by-step workings
and answers into your notes.**

$$(d) 7\frac{1}{2} \div 2\frac{1}{4}$$

Step 1: Change mixed number into improper fraction.

$$\begin{array}{c} \boxed{} \\ \hline \hline \\ \boxed{} \end{array} \div \begin{array}{c} \boxed{} \\ \hline \hline \\ \boxed{} \end{array}$$

Step 2: Apply the KCF method and solve.

$$\begin{array}{c} \boxed{} \\ \hline \hline \\ \boxed{} \end{array} \times \begin{array}{c} \boxed{} \\ \hline \hline \\ \boxed{} \end{array} = \begin{array}{c} \boxed{} \\ \hline \hline \\ \boxed{} \end{array} \begin{array}{c} \boxed{} \\ \hline \hline \\ \boxed{} \end{array}$$

If your answer is improper fraction,
Convert it to mixed numbers in
simplest form



**Please copy the step-by-step workings
and answers into your notes.**

Example 22:

$$\frac{4}{7}$$

of a number is 84. Find the number.

Let y be the number,

$$\frac{4}{7} \text{ of } \boxed{\text{A number}} = 84$$

$$\frac{4}{7} \times y = 84$$

$$y = \frac{\square}{\square} \times 84$$

} **simplify**

Hint:
Multiplicative inverse
 (reciprocal) of $\frac{4}{7}$

$$= 147$$



**Please copy the step-by-step workings
and answers into your notes.**

Example 23

Calculate five-eighths of fourteen dollars

$$\frac{\boxed{}}{\boxed{}} \text{ of } \boxed{}$$

$$\frac{\boxed{}}{\boxed{}} = \$ 8.75$$

Example 24

Aqil has 15 shirts in his closet. If 2 out of every 3 of these shirts are striped, how many unstriped shirts does he have in his closet?

Watch the video explanation:

Answer = unstriped shirts



**Please copy the step-by-step workings
and answers into your notes.**