

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.

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

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

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

$$\frac{2}{3} \times \frac{7}{3}$$

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

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

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

$$\frac{14}{9} = 1\frac{5}{9}$$

DIVIDING FRACTIONS

Remember!

Keep	Change	Flip
First fraction stays the same	Operation changes from \div to \times	Flip 2nd fraction for reciprocal

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

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

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

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

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

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

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

$$\frac{2}{3} \div \frac{7}{3}$$

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

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

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

$$\frac{2}{3} \times \frac{3}{7}$$

Step 4: Multiply the fractions.

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

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

$$\frac{2}{3} \times \frac{3}{7} = \frac{6}{21}$$

Step 5: Write the answer in simplest terms.

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

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

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

Example 2 I

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

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.

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

REMEMBER!

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

Example 2 1

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

$$\frac{1}{3} \square \frac{1}{4} = \frac{\square}{\square}$$

What is "of" ?



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

**K** eep1st fraction
stays the
same**C** hangeOperation
changes
from ÷ to ×**F** lipFlip 2nd
fraction for
reciprocal

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

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

REMEMBER

**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.

$$\frac{\boxed{}}{\boxed{}} \div \frac{\boxed{}}{\boxed{}}$$

Step 2: Apply the KCF method and solve.

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

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



REMEMBER

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,

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

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

$$y = \frac{\boxed{}}{\boxed{}} \times 84 \quad \left. \vphantom{\frac{\boxed{}}{\boxed{}}} \right\} \text{ simplify}$$

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

$$= 147$$

REMEMBER

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 = $\frac{\boxed{}}{\boxed{}}$ unstriped shirts

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