MATHEMATICS 5

Modified In-School Off-School Approach Modules (MISOSA)

Distance Education for Elementary Schools

SELF-INSTRUCTIONAL MATERIALS

ONE-STEP WORD PROBLEMS INVOLVING MULTIPLICATION OF FRACTIONS

Department of Education
BUREAU OF ELEMENTARY EDUCATION
2nd Floor Bonifacio Building
DepEd Complex, Meralco Avenue
Pasig City

Revised 2010

by the Learning Resource Management and Development System (LRMDS),
DepEd - Division of Negros Occidental
under the Strengthening the Implementation of Basic Education
in Selected Provinces in the Visayas (STRIVE).

This edition has been revised with permission for online distribution through the Learning Resource Management Development System (LRMDS) Portal (http://lrmds.deped.gov.ph/) under Project STRIVE for BESRA, a project supported by AusAID.

ONE-STEP WORD PROBLEMS INVOLVING MULTIPLICATION OF FRACTIONS

Objective: Solve one-step word problems involving multiplication of fractions

Complete the train. Reduce each product to lowest terms if possible. Write your answers in your paper.

1) $\frac{1}{2} \times \frac{2}{3} = \square \times \frac{4}{5} = \square \times 7 =$

2) $\frac{1}{4} \times \frac{3}{5} = \square \times 1\frac{1}{3} = \square \times 2\frac{3}{4} =$

3) $1\frac{2}{5} \times \frac{2}{3} = \square \times 1\frac{4}{7} = \square \times 2\frac{1}{2} =$

Study and Learn

Everyday, Alvin spends $3\frac{1}{2}$ hours reading books. How many hours does he spend in a week reading books?

Let's follow the steps below.

1. **Read and understand the problem.**

   - Know what is asked for.

     The number of hours he spends reading in a week.
   - Know what the given facts are.

     $3\frac{1}{2}$ *hours* $\rightarrow$ *time spent in reading a day*

     7 days $\rightarrow$ *number of days in a week*

2. **Plan**

   - Make a plan that will help you solve the problem.

     We need to multiply $3\frac{1}{2}$ hours by 7, since there are 7 days in a week.

     Therefore, our number sentence is $3\frac{1}{2}$ *x 7 = N.*

3. **Solve.**

$$3\frac{1}{2} \times 7 = N$$

$$3\frac{1}{2} \times 7 = \frac{7}{2} \times \frac{7}{1} = \frac{49}{2} \text{ or } \boxed{24\frac{1}{2}}$$

Change $3\frac{1}{2}$ to improper fraction.

Express 7 as fraction.

Reduce to lowest terms.

4. Look back.

Let's check if our answer is correct.

Since there are 7 days a week, a day is $\frac{1}{7}$ of a week.

We can check our answer by solving $\frac{1}{7}$ of $24\frac{1}{2}$. If the product is $3\frac{1}{2}$, then our answer to the problem is correct.

Let's solve.

$\frac{1}{7}$ **x** $24\frac{1}{2}$ **=** $\frac{1}{7}$ **x** $\frac{49}{2}$ **=** $\frac{49}{14}$ **=** $3\frac{7}{14}$ **or** $3\frac{1}{2}$

We got the correct answer!

So, $3\frac{1}{2}$ *x 7 =* $24\frac{1}{2}$*.*

Alvin reads $24\frac{1}{2}$ *hours a week.*

Here's another example.

If Alvin reads $24\frac{1}{2}$ hours a week, how many hours will he spend reading in $2\frac{1}{2}$ weeks time?

Let's solve together.

1. Read and understand the problem.

- What is asked?

  The number of hours Alvin will spend in reading in $2\frac{1}{2}$ weeks time.

- What are the given facts?

  $24\frac{1}{2}$ hours is the time spent in reading in a week.

2. Plan

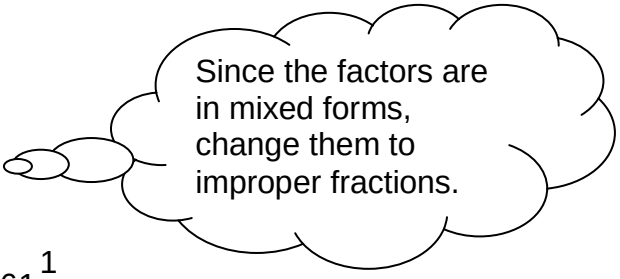
- What process is needed to solve the problem?

  Multiplication

- What is the number sentence?

  $24\frac{1}{2} \times 2\frac{1}{2} = n$

3. Solve.



$24\frac{1}{2} \times 2\frac{1}{2} = n$

$\frac{49}{2} \times \frac{5}{2} = \frac{245}{4}$ or $61\frac{1}{4}$

4. Look back.

Look at our answer. Does $61\frac{1}{4}$ make sense?

In $2\frac{1}{2}$ weeks, Alvin will spend $61\frac{1}{4}$ hours reading.

A. Read the story problems then answer the questions that follow.

Anselmo spent $\frac{6}{8}$ of his time in the morning studying Math and Science. He spent $\frac{1}{4}$ of this time studying Science. What fraction of the total time did he spend studying Science?

1) What is asked in the problem?
2) What are the given facts?
3) What is the process involved?
4) What is the number sentence?
5) What is the answer?

B. Read and solve each problem.

1) Rusell plays the piano $\frac{5}{9}$ hour a day. Her friend Ronell, plays $\frac{2}{3}$ as long. How long does Rusell play each day?
2) Joanne signed up for 24 dancing lessons. She took $\frac{3}{4}$ of them by April. How many dancing lessons did she take by April?

Wrap Up

In solving word problems, follow these steps:

- Read and understand the problem.
- Plan how you will solve the problem.
- Solve.
- Look back.

On Your Own

Read and solve each problem.

1) What is the area of a rectangle whose length is $\frac{8}{10}$ m and width is $\frac{2}{3}$ m?
2) Gigi bought $1\frac{3}{4}$ kg of sugar. She used $\frac{3}{4}$ of it to bake a cake. How much sugar did she use?
3) Aling Aning planted vegetables on $\frac{4}{7}$ of her vacant lot. Two thirds of it was planted with pechay. What fraction of the vacant lot had pechay?
4) Lorna had $2\frac{1}{2}$ litres of beef broth. She used $\frac{3}{5}$ of it to make soup. How much beef broth did she use to make soup?
5) A recipe calls for $1\frac{1}{3}$ litres of milk. How many litres of milk do you need to make 2 recipes?

Check your answer with the answer key.

If you get…

4-5	Excellent! You may now proceed to the next lesson.
3	You need to review the processes you missed.
0-2	You need to repeat the whole process. Ask your teacher or elder to help you.

Key to Correction
ONE-STEP WORD PROBLEMS INVOLVING MULTIPLICATION OF FRACTIONS

REVIEW

1) $\frac{1}{2} \times \frac{2}{3} = \boxed{\frac{1}{3}} \times \frac{4}{5} = \boxed{\frac{4}{15}} \times 7 = 1\frac{13}{15}$
2) $\frac{1}{4} \times \frac{3}{5} = \boxed{\frac{3}{20}} \times 1\frac{1}{3} = \boxed{\frac{1}{5}} \times 2\frac{3}{4} = \boxed{\frac{11}{20}}$
3) $1\frac{2}{5} \times \frac{2}{3} = \boxed{\frac{14}{15}} \times 1\frac{4}{7} = \boxed{1\frac{7}{15}} \times 2\frac{1}{2} = \boxed{3\frac{2}{3}}$

TRY THESE
A.
1) The fraction of the total time Anselmo spent studying Science
2) $\frac{6}{8}$ total time spent for studying Science and Math
   $\frac{1}{4}$ of $\frac{6}{8}$ spent for studying Science
3) multiplication
4) $\frac{1}{4} \times \frac{6}{8} = N$
5) $\frac{3}{16}$ of the time was spent studying Science

B.
1) $\frac{10}{27}$ hour
2) 18 lessons

ON YOUR OWN
1) $\frac{8}{15}$ m
2) $1\frac{5}{16}$ kg of sugar
3) $\frac{8}{21}$ of the vacant lot
4) $1\frac{1}{2}$ part of the beef broth was used
5) $2\frac{2}{3}$ litres of milk