MATHEMATICS 5

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

Distance Education for Elementary Schools

SELF-INSTRUCTIONAL MATERIALS

TWO-STEP WORD PROBLEMS INVOLVING MULTIPLICATION AND ADDITION OF FRACTIONS

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TWO-STEP WORD PROBLEMS INVOLVING MULTIPLICATION AND ADDITION OF FRACTIONS

Objective: Solve two-step word problems involving multiplication and addition or subtraction of fractions

A. Read the story problem. Answer the questions that follow.

> Romy drives at an average of 47 kilometres per hour. How far can he travel in $1\frac{4}{5}$ hours?

1) What is asked in the problem?

2) What are the given facts?

3) What process is involved?

4) What is the number sentence?

5) What is the answer?

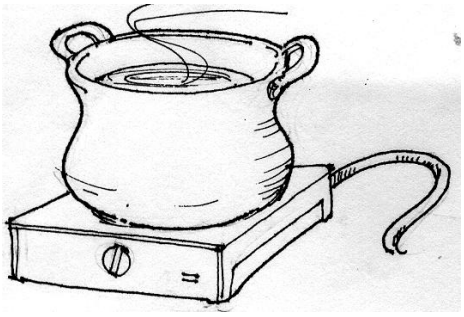
B. Read and solve.

1) A worker receives ₱300 a day. How much will he receive for working in $2\frac{2}{3}$ days?

2) Manel bought $2\frac{1}{4}$ metres of cloth. She used $\frac{1}{2}$ of it to make a blouse. What fraction of the cloth did she use?

Study and Learn

Mrs. Vale bought 2 chickens. One weighed $1\frac{3}{4}$ kg and the other one $2\frac{1}{5}$ kg. These were cut up and combined in one bag. She cooked $\frac{2}{3}$ of the chickens for lunch. What fraction of all the chickens did she cook?



Let's follow the steps below to solve this problem.

1) Understand

- **What are the given facts?**

  $1\frac{3}{4}$ *kg and* $2\frac{1}{5}$ *kg of chicken - the weight of each chicken Mrs. Vale bought.*

  $\frac{2}{3}$ *of chickens - the fractional part of the chicken that she cooked.*

- **What is asked?**

  The fractional part of all the chicken that she cooked.

- **What must be known first before we can solve for the final answer?**

  The total weight of the two chickens.

2) Plan

- **What processes are involved in the problem?**
  (addition and multiplication)
- **What should we do to solve the problem?**

  We should find first the total weight of the 2 chickens, and get $\frac{2}{3}$ *of it.*
- **What would be our number sentence?**

  $\frac{2}{3} \times (1\frac{3}{4} + 2\frac{1}{5}) = n$

3) Solve and look back.

$\frac{2}{3} \times (1\frac{3}{4} + 2\frac{1}{5}) = n$

$1\frac{3}{4}$ and $2\frac{1}{5}$ are dissimilar fractions. Change them to similar fractions first before adding.

$\frac{2}{3} \times (1\frac{15}{20} + 2\frac{4}{20}) = n$

$\frac{2}{3} \times 3\frac{19}{20}$ — Change the mixed forms to improper fractions.

$\frac{\cancel{2}^{1}}{3} \times \frac{79}{\cancel{20}_{10}} = \frac{79}{30}$ — Use cancellation whenever possible.

$\frac{79}{30} = 2\frac{19}{30}$ — Simplify the answer.

Mrs. Vale cooked $2\frac{19}{30}$ kg of chickens.

Look at our answer. Is $2\frac{19}{30}$ kg reasonable?

A. Read the story problem. Answer the questions that follow.

In a class of 45, $\frac{4}{9}$ are boys. How many are girls?

1. What processes are involved in the problem?

   a. addition and subtraction
   b. addition and multiplication
   c. subtraction and multiplication
   d. multiplication and division

2. What is the appropriate number sentence?

   a. $(\frac{5}{9} + \frac{4}{9}) \times 45 = n$
   c. $(\frac{9}{9} - \frac{4}{9}) \times 45 = n$

b. $(\frac{5}{9} - \frac{4}{9}) \times 45 = n$

d. $(\frac{9}{9} \times \frac{4}{9}) - 45 = n$

B. Solve the following word problems. Choose the letter of the correct answer.

1. Myrna has $\frac{5}{6}$ of a pizza. She ate $\frac{1}{3}$ of it. What part of the pizza was left?

   a. $\frac{4}{9}$

   b. $\frac{5}{9}$

   c. $\frac{3}{9}$

   d. $\frac{2}{9}$

2. The juice pitcher was $\frac{5}{8}$ full. Freddie drank $\frac{2}{5}$ of it. What part of the juice was left?

   a. $\frac{5}{8}$

   b. $\frac{3}{8}$

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

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

3. Kimo planted vegetables in $\frac{3}{5}$ of his garden. $\frac{2}{3}$ of it is planted with eggplants. What part of the vegetable garden is not planted with eggplants?

   a. $\frac{1}{5}$

   b. $\frac{2}{5}$

   c. $\frac{3}{5}$

   d. $\frac{4}{5}$

Wrap Up

In solving a two-step word problem, remember these steps:

- Read and understand the problem.

  Know the given facts, what is asked and the hidden question.

- Plan what you should do to solve the problem.
- Solve and look back.

On Your Own

Read and solve the word problems below.

1) Aika is taking a 50-item test in Math. $\frac{3}{5}$ of the test is about fractions and the rest is about decimals. How many items are about decimals?

2) A jar contains 35 assorted cookies. If $\frac{3}{7}$ of the contents are chocolate cookies, how many cookies are not chocolate?

3) A basket is full of santol and guavas. If $\frac{5}{9}$ of the fruits are santol and there are 81 fruits in all, how many of each kind are there?

4) Mang Daniel had $4\frac{3}{4}$ hectares of land. He used $\frac{3}{5}$ of it for planting mango trees and the rest with santol trees. How much land was planted with santol trees?

5) Misty had $\frac{9}{10}$ m of yellow ribbon and $\frac{1}{2}$ m of green ribbon. If she used all the green ribbon and $\frac{1}{3}$ of the yellow ribbon for her project, how many metres of ribbon was used?

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
TWO-STEP WORD PROBLEMS INVOLVING MULTIPLICATION OF FRACTIONS

REVIEW

A.

1) The distance he can travel in $1\frac{4}{5}$ hours
2) The given facts are 47 kilometres and $1\frac{4}{5}$ hours
3) multiplication
4) $47 \times 1\frac{4}{5} = n$
5) $84\frac{3}{5}$ km

B.

1) ₱800
2) $1\frac{1}{8}$

TRY THESE

A.
1) c
2) c

B.
1) b
2) b
3) a

ON YOUR OWN

1) 20 items
2) 20 cookies
3) 45 santol and 36 guavas
4) $1\frac{9}{10}$ hectares
5) $\frac{4}{5}$ metres