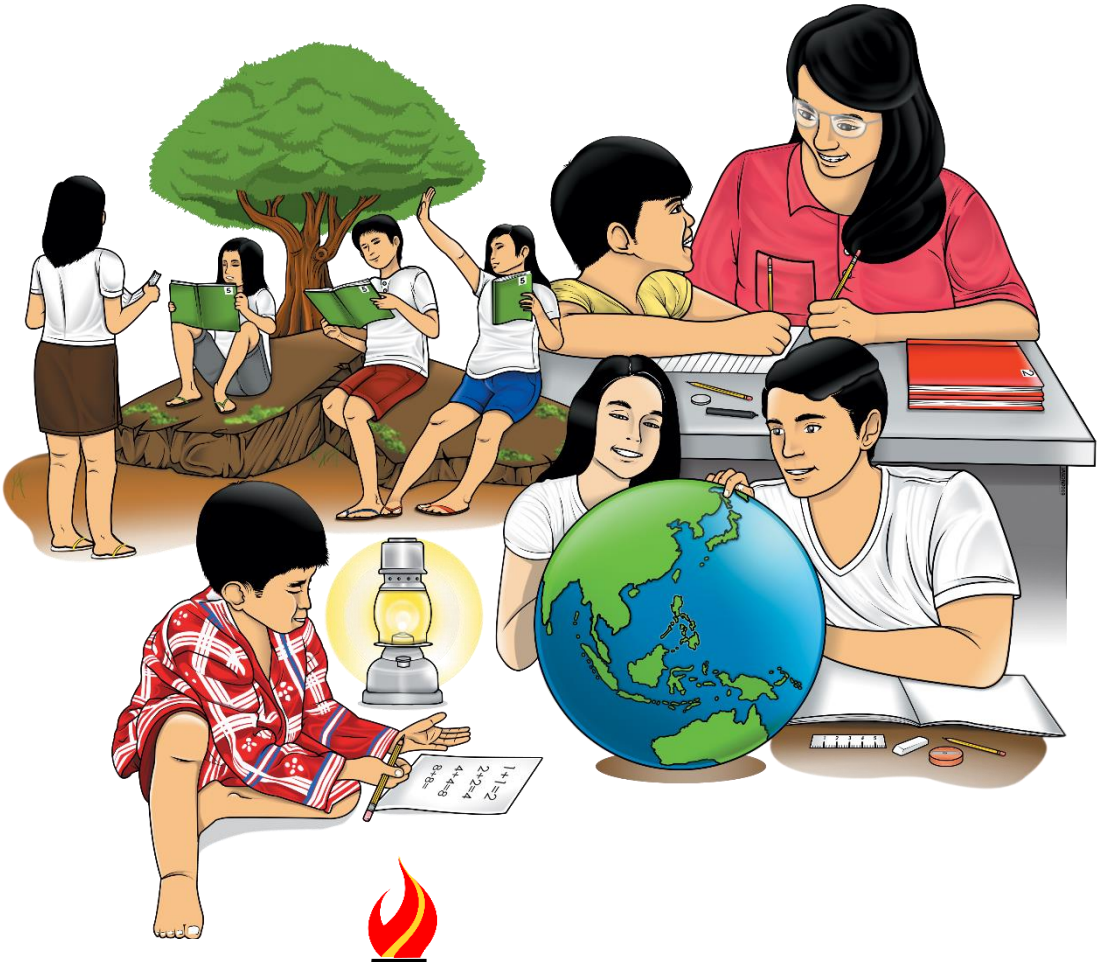
3

Mathematics

Quarter 4 – Module 78:
Solving Routine and Non-Routine Problem Using data presented in Single Bar Graph



ALTERNATIVE DELIVERY MODE
ADM

Department of Education • Republic of the Philippines

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Mathematics – Grade 3
Alternative Delivery Mode
Quarter 4 – Module 78: Solving Routine and Non-routine Problem
First Edition, 2019

Published by the Department of Education
Secretary:
Undersecretary:
Assistant Secretary:

Development Team of the Module

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Reviewers: Name

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Layout Artist: Name

Management Team: Name

Printed in the Philippines by _____

Department of Education – Bureau of Learning Resources (DepEd-BLR)

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Telefax: _____
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Mathematics

Quarter 4 – Module 78: Solving Routine and Non- Routine Problem Using Data Presented in a Single – Bar Graph

Department of Education • Republic of the Philippines

Introductory Message

For the facilitator:

This material is prepared hopefully to be useful for the Grade Three learner to develop the critical and creative thinking skills to make real life situation easier for them to handle. The skills are based on the K to 12 curriculum prescribed by the Department of Education. The exercises written will supplement the textbook and teacher - made activities to the pupils because we believe in the saying "Constant Practice Makes Perfect". In answering this material it is better to use separate sheet of papers so that other pupils can also utilized the activities presented here.

For the learner:

This material has been carefully prepared and designed to answer the needs and to enhance the potentials and interest of a Grade 3 learner like you. The activities presented in each lesson aimed to enhance the development of critical and creative thinking skills in solving problems in real life situation.

Through this material, it is hoped that you will enjoy your Math lessons making you equipped with the necessary knowledge, skills and attitude when you move on the next level of education. Hopefully, you will be able to apply your learning in real life situation.

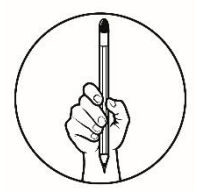
What I Need to Know

(Introduction)

In the previous lesson, you learned about organizing, presenting and interpreting data in a graph. In this module, you will learn new concept of solving routine and non-routine problem presented in a single bar graph. This will be a learning experience that will help you establish connections between problem solving concept and real life context.

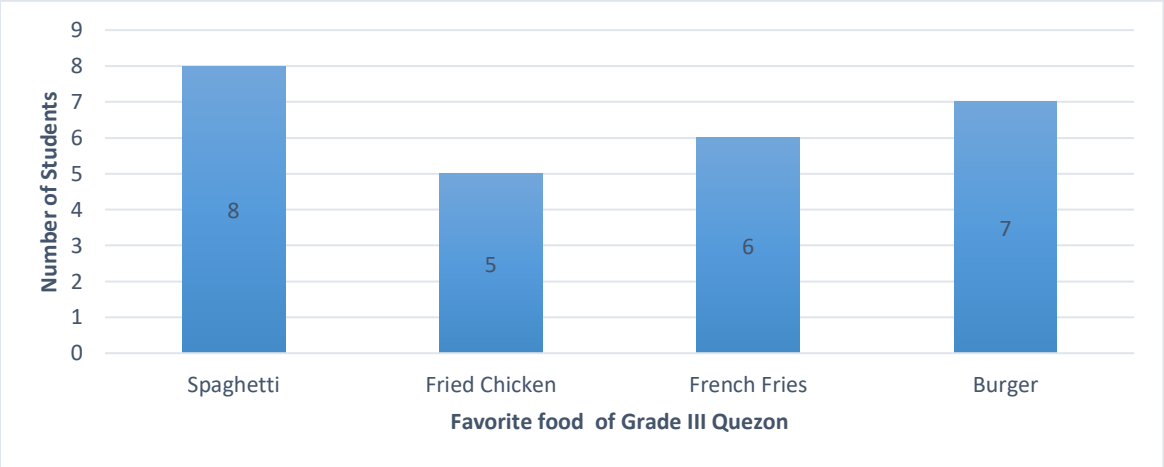
Learning Objective:

1. Solve routine and non-routine problems using data presented in a single –bar graph.



What I Know (pre-test)

Use the bar graph to answer the questions.



The Grade III pupils of Sanghay Elementary School celebrated the Christmas party. The graph shows their favourite food.

1. How many pupils like spaghetti and burger? _____

2. How many pupils like fried Chicken and French Fries? _____

3. How many more pupils like fried chicken and spaghetti than French fries? _____

4. What are the two consecutive numbers greater than 6 that if we combine becomes 15? _____

5. The class of Grade Quezon has 30 pupils. If there are 8 pupils like spaghetti and 5 pupils like fried chicken, how many pupils did not choose the food given above? _____

Lesson	*Solving Routine and Non-Routine Problems using Data Presented in a single Bar Graph*

(Lesson Proper/Setting up the Phase)

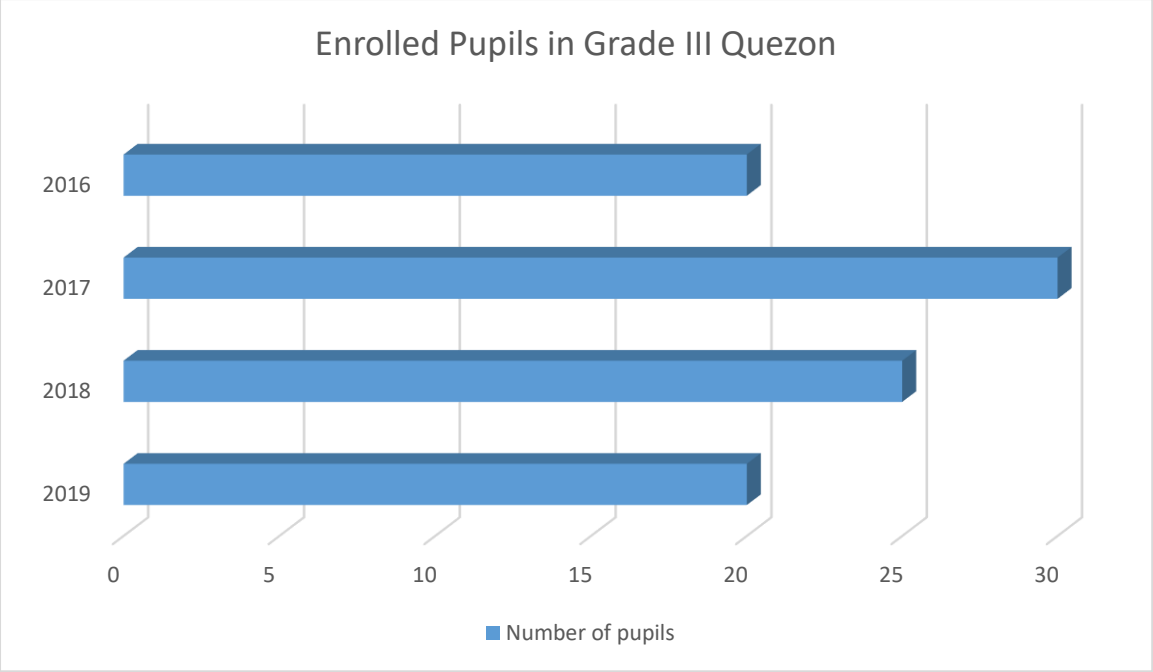
Life is full of challenges and trials. We need to solve and survive all the trials that we encounter. For us to evaluate what has been done sometime we need to present in a form of graphical representation for us to read and solve the problem. In this module, you will learn to solve routine and non-routine problems using data presented in a single bar graph.

What's In

(Review/Pre-requisite topics/Prior Knowledge)

Use the graph to answer the following questions.

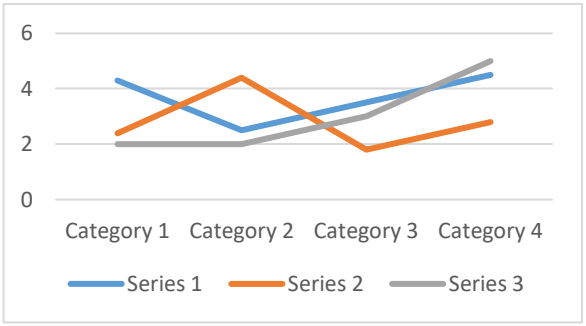
Mrs Loweila T. Umpad the Grade Three adviser conducted the tracking of enrolment for the past three years up to the present.



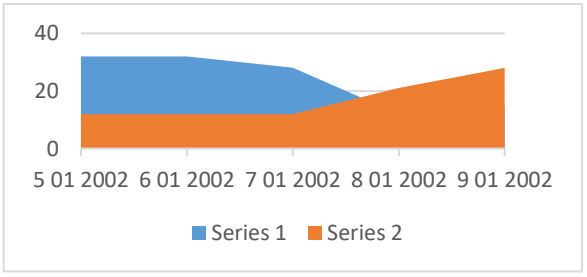
1. What is the title of this graph? _____

2. How many pupils were enrolled in the year 2017 and 2018? _____

3. Which of the following is an example of a single bar graph?



a.



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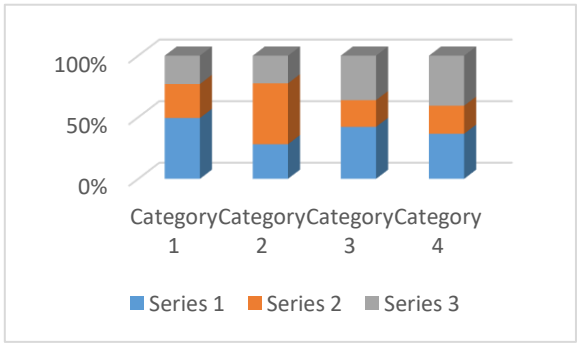

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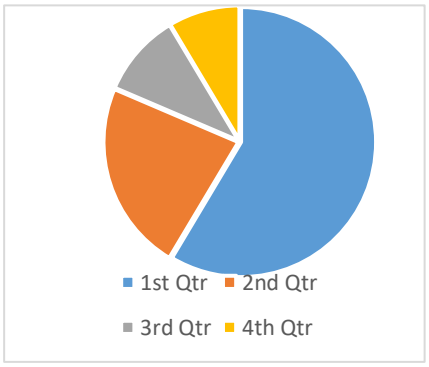
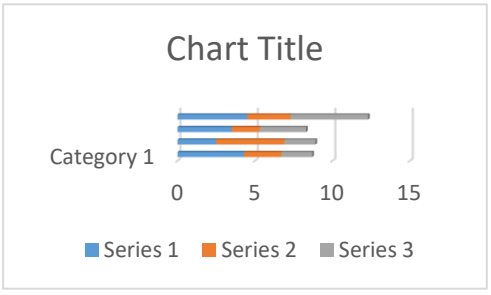


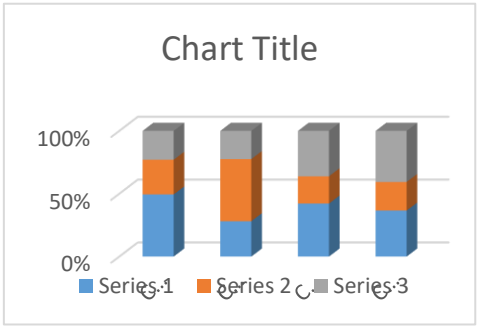
d.

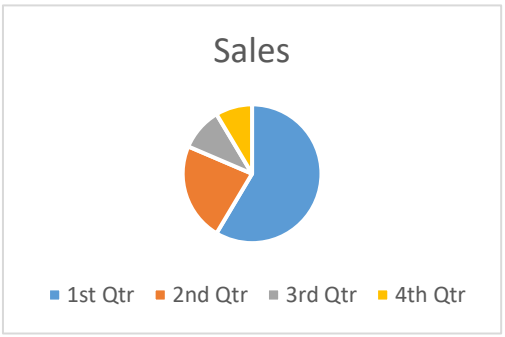
5. Which of the following is an example of a vertical single bar graph.

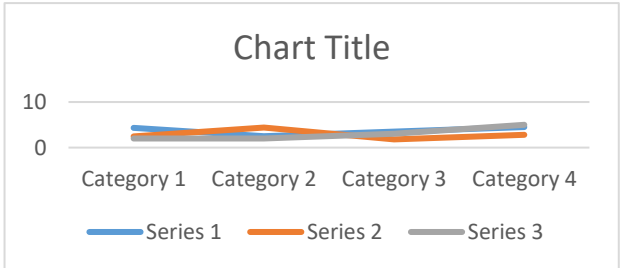
a.



b.







d.

Notes to the Teacher

(Instruction to the teacher/facilitator)

In answering the series of activities it is better to use another separate sheet so that this module can be utilized by other pupils.

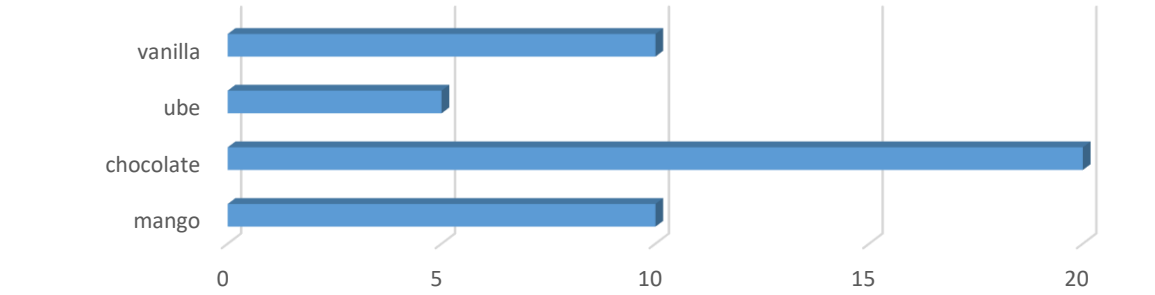
What's New

(Presentation of the Lesson/Contextualized Activity)

A **Problem solving** could be **routine** problem solving and **non-routine** problem solving.

A **routine problem solving** is one step problem involves using at least one of the four arithmetic operations. It uses clear procedure.

Look at the graph below. The graph shows the number of pupils of their favourite ice cream flavour.



	mango	chocolate	ube	vanilla
number of pupils	10	20	5	10

Lynnuel Rhoss celebrated her 9th birthday. She asked her classmate what their favourite ice cream flavour and she put the result in a graph.

Steps in routine problem solving

1. Read and understand the problem.

a. Identify what is asked.

1. How many pupils like chocolate and vanilla flavour?

b. What are given?

20 – pupils like chocolate flavour

10 – pupils like vanilla flavour

5 - pupils likes ube flavour

10 - pupils like vanilla flavor

2. Plan

a. Identify the operation to be used.

Addition

b. Write the number sentence.

20 + 10 = N

3. Solve the number sentence.

20 + 10 = 30

4. Look Back

Is the answer reasonable? Yes

Non-Routine problem solving is any complex problem that uses two or more arithmetic operations to solve. These problems can be solved in multiple ways. It does not use clear procedure.

Based on the graph above answer the following question.

If there are 50 classmates of Lynuell Rhoss then 10 pupils like mango,20 pupils like chocolate,5 pupils like ube and 10 pupils like ube flavour, how many pupils did not choose the above flavour?

To solve two step – word problems, follow this steps.

1. What is asked?

The number of pupils did not like the above flavour.

2. Identify what are given.

50 – total classmates

20 – pupils like chocolate flavour

5 – pupils like ube flavour

10 – pupils like mango flavour

10 - pupils like vanilla flavour

3. Look for the hidden question.

The number of pupils who like the above flavour

4. Write the number sentence.

50 - (10 + 5 + 10 + 20) = N

5. Do the operation inside the parenthesis first, then perform the remaining operation.

50 - (10 + 5 + 10 + 20) = N

50 - (45) = N

50 - 45 = N

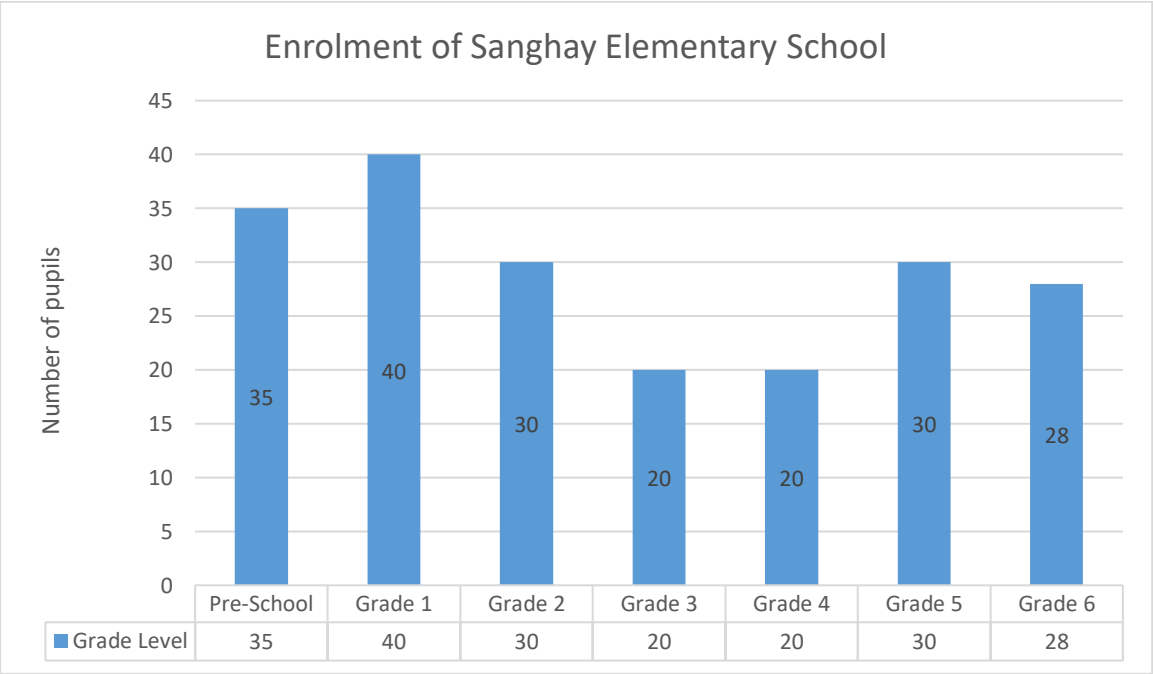
6. Write the answer with the proper label.

5 - pupils did not like chocolate flavour

Activity 1

Use the graph to answer the following questions.

In Sanghay Elementary School, the grade school enrolment was shown using a horizontal bar graph. Use the graph to answer the following questions.



_____1. What is the total number of pupils enrolled in Grade 6 and Grade 5?

a. 58 b. 40 c. 70 d. 48

_____ 2. How many pupils enrolled in Grade IV and Grade II?

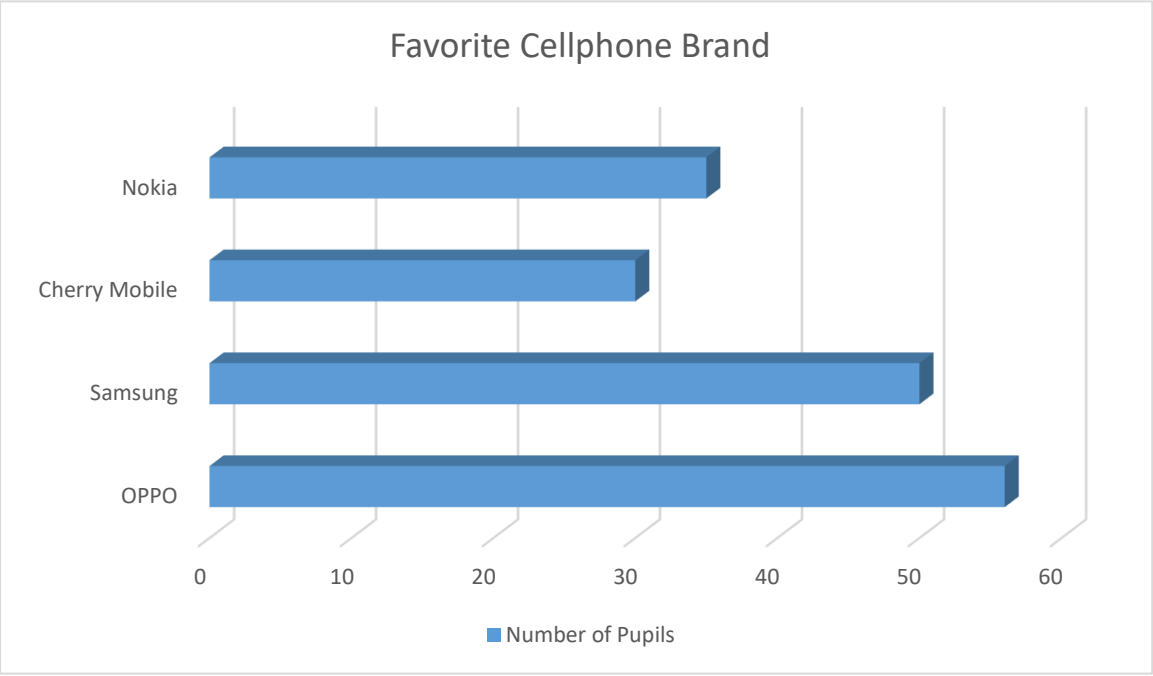
a. 45 b. 55 c. 65 d. 50

_____3. If Grade III and IV have the same enrolees how many enrolees are there in all?

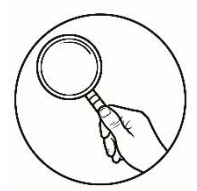
a. 40 b. 50 c. 60

Based on the graph given below answer the following questions.

The graph shows the number of students in Sanghay Elementary School using their different favourite cellular phone.



4. Sanghay has the total enrolment of 545 pupils. If 30 pupils using Cherry Mobile,50 pupils using Samsung,56 pupils using OPPO and 35 pupils using Nokia cellular phone ,how many students don't have a cellular phone?



What is It

(Discussion of the Lesson)

A Problem solving could be routine problem solving and non-routine problem solving.

A **routine problem solving** is **one step** problem involves using at **least one** of the four arithmetic operations. It uses clear procedure.

Non-Routine problem solving is any complex problem that uses **two or more** arithmetic operations to solve. These problems can be solved in multiple ways. It does not use clear procedure.

REMEMBER:

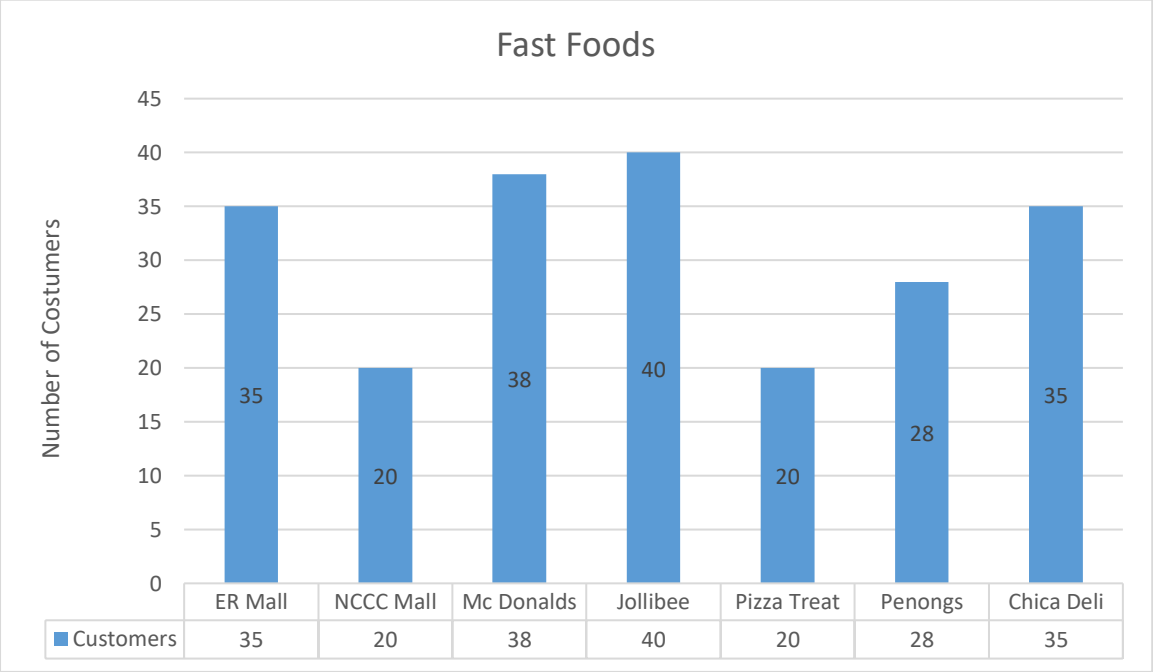
Steps in Solving Problem

1. **Think** What are given?
   What is asked?
2. **Plan** What operation will you use?
   What is the number sentence?

3. Solve
4. Look Back Check if the answer is reasonable.

Sample of routine problem solving:

Look at the graph below. The graph shows the number of customers enter the fast food in an hour.



These can help us solve the problem.

These are the steps in solving Routine Word Problem.

1. Read and understand the problems.

- What is asked in the problem?
  - How many customers are there in Mc Donalds and Jollibee?

- What are the given facts?
  - McDonalds – 38
  - Jollibee - 40

2. Plan what to do.

- What operation should be used to solve the Problem?
  - Addition
- What is the number sentence?
  - 40+38 = N

3. Do the required operation.

- Solve the problem.
  -
    40
  + 38
  ———
    78

4. Check the answer.

- Is the answer reasonable?
  - yes
- Does it answer the question?
  - yes

Non-Routine problem solving is any complex problem that uses two or more arithmetic operations to solve. These problems can be solved in multiple ways. It does not use clear procedure.

REMEMBER:

Here are the steps in solving problems involving two operations.

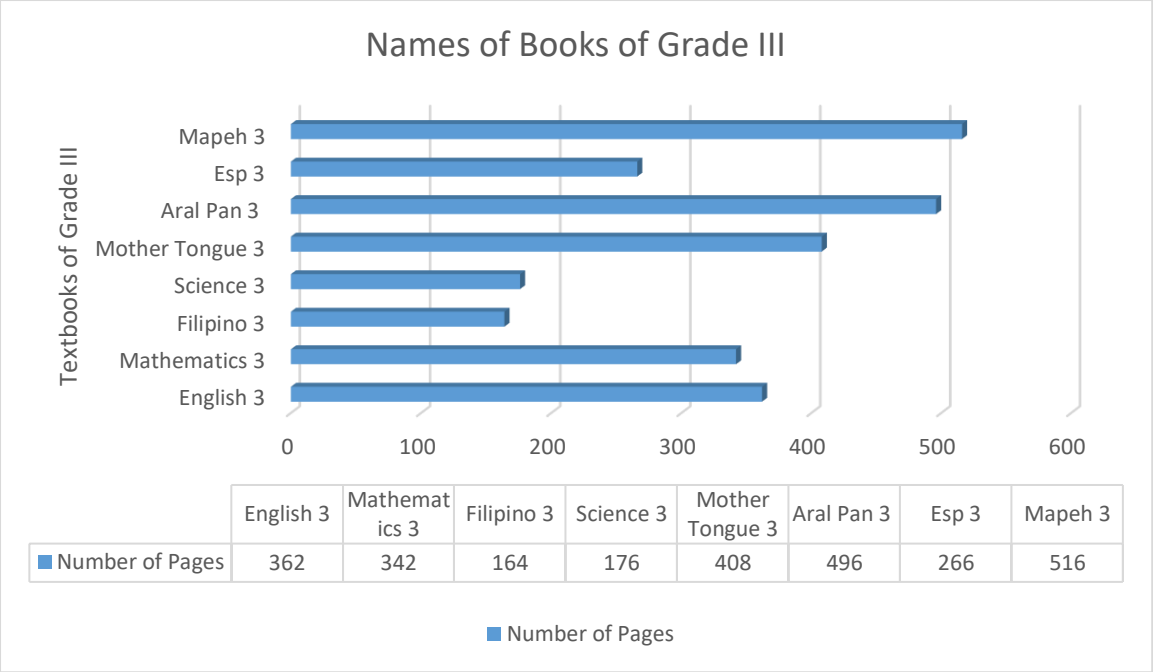
1. Find out what is asked.
2. Identify what are given.
3. Look for the hidden question.
4. Think of the operation (s) to be used.
5. Write the number sentence.

6. Do the operation inside the parenthesis first. Then perform the remaining operation.

7. Solve for the final answer.

Sample of Non- Routine problem solving:

Look at the graph below then answer the following question.The graph shows the Grade 3 textbooks and corresponding number of pages in each textbook.



	English 3	Mathematics 3	Filipino 3	Science 3	Mother Tongue 3	Aral Pan 3	Esp 3	Mapeh 3
Number of Pages	362	342	164	176	408	496	266	516

1. Mystty Mae Jane Umpad read the English textbook which has 362 pages. She read Unit 1 with 95 pages and Unit 3 with 72 pages.How many more pages will she read?

2. Johnlloyd Umpad and Rex Jr. read together the Mathematics 3 textbook which has 342 pages.If they read the Unit 1 with 102 pages and Unit 2 with 86 pages . How many remaining pages will they read?

Follow the steps involving two operations.

1.Find out what is asked.

- How many more pages will she read to finish the English textbook.
- How many more remaining pages will they read.

2.Identify what are given.

- English textbook has 362 pages
- 95 pages in Unit 1 and 72 pages in Unit 2
- Mathematics 3 textbook has 342 pages
- 102 pages in Unit 1 and 86 pages in Unit 2

3.Look for the hidden question.

Problem No. 1 The total number of pages that was already read in English 3 textbook.

Problem No. 2 The total number of pages that was already read in Mathematics 3 textbook.

4.Think the operations to be used.

- Addition and Subtraction.

5. Write the number sentence.

Problem No. 1 362 – (95 + 72) = N

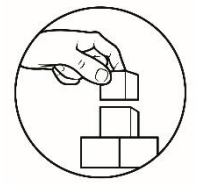
Problem No. 2 342 – (102 + 82) = N

6. Do the operation inside the parenthesis first. Then perform the remaining operation.

362 – (95+72) = N	342 – (102 + 82) = N
362 – (167) = N	342 – (184) = N
362 – 167 = N	342 – 184 = N

7. Solve for the final answer.

362 – 167 = 195 **195** the remaining pages to read in English textbook.
342 – 184 = 158 **158** the remaining pages in Mathematics 3 textbook to be read.



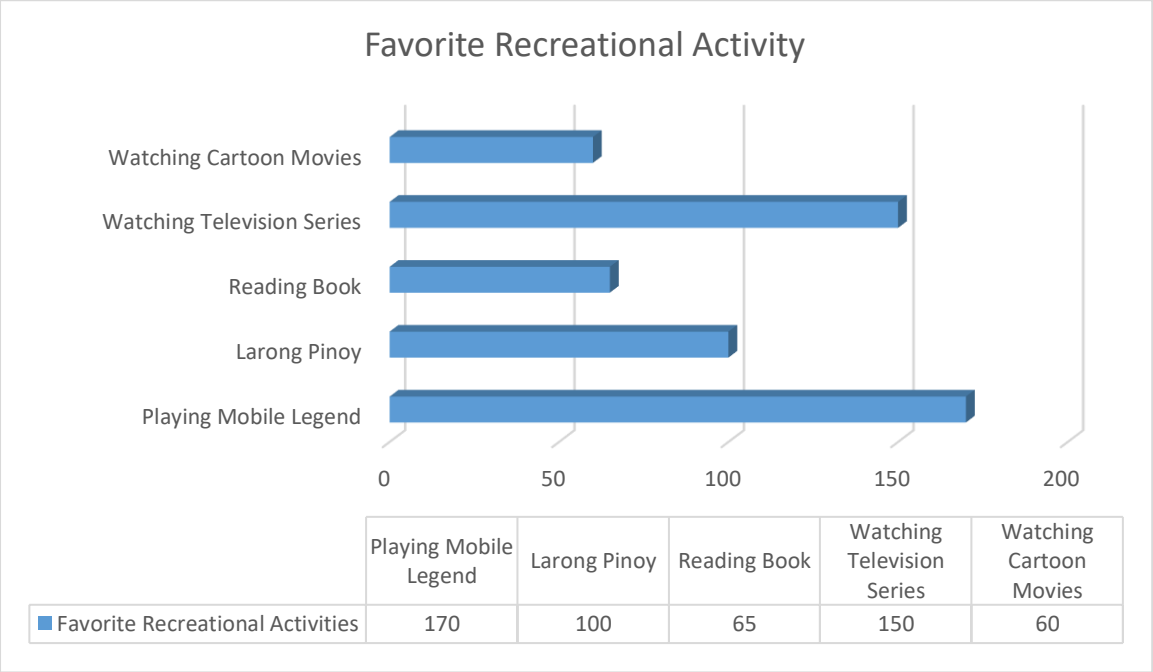
What's More

(Drill, Practice Test, Enrichment Activities)

Activity 2

Look at the graph below. The graph shows the favourite recreational activities of children in Sanghay Elementary E/S.

Use the graph to answer the following questions.



	Playing Mobile Legend	Larong Pinoy	Reading Book	Watching Television Series	Watching Cartoon Movies
Favorite Recreational Activities	170	100	65	150	60

1. How many children love to watch television series and has the love in reading book?

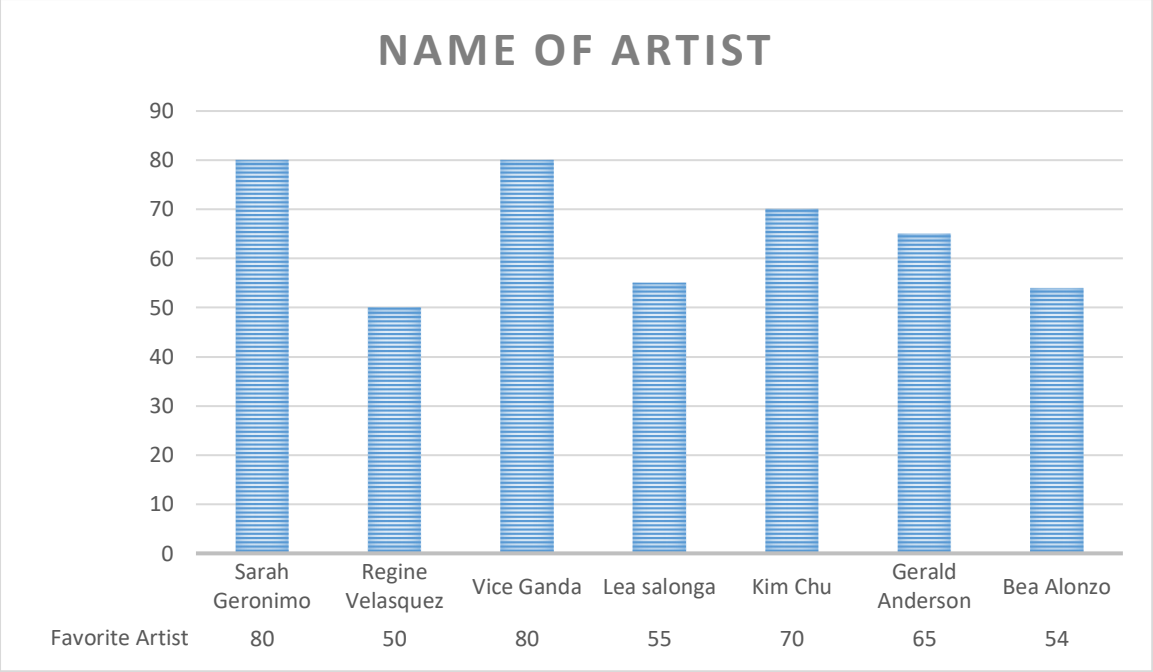
2. What is the total number of children love to play mobile legend and play Larong Pinoy.

3. Sanghay E/S has the total enrollment of 845. If 170 children love to play mobile legend and 150 children love to watch movies, 65 children love to read, 65 children love to watch cartoon movies, 100 children want to play Larong Pinoy, how many more children did not like the recreational activities mentioned above?

Activity 3

Use the graph to answer the following questions? The graph shows the favorite artist of children in Grade Three Quezon.

In the Grade Three class Mrs. Loweila T. Umpad the class adviser identifies the favorite artist of children presented by a graph. Use the graph to answer the following questions.



1. How many children like Regine Velasquez and Sarah Geronimo?

2. What are the two consecutive numbers greater than 50 that if we combine becomes 109?

What I Have Learned

(Generalization)

A Problem solving could be routine problem solving and non-routine problem solving.

A **routine problem solving** is **one step** problem involves using at **least one** of the four arithmetic operations. It uses clear procedure.

REMEMBER:

Steps in Solving Problem

1. Think What are given?

   What is asked?

2. Plan What operation will you use?

   What is the number sentence?

3. Solve

4. Look Back Check if the answer is reasonable

Non-Routine problem solving is any complex problem that uses two or more arithmetic operations to solve. These problems can be solved in multiple ways. It does not use clear procedure.

REMEMBER:

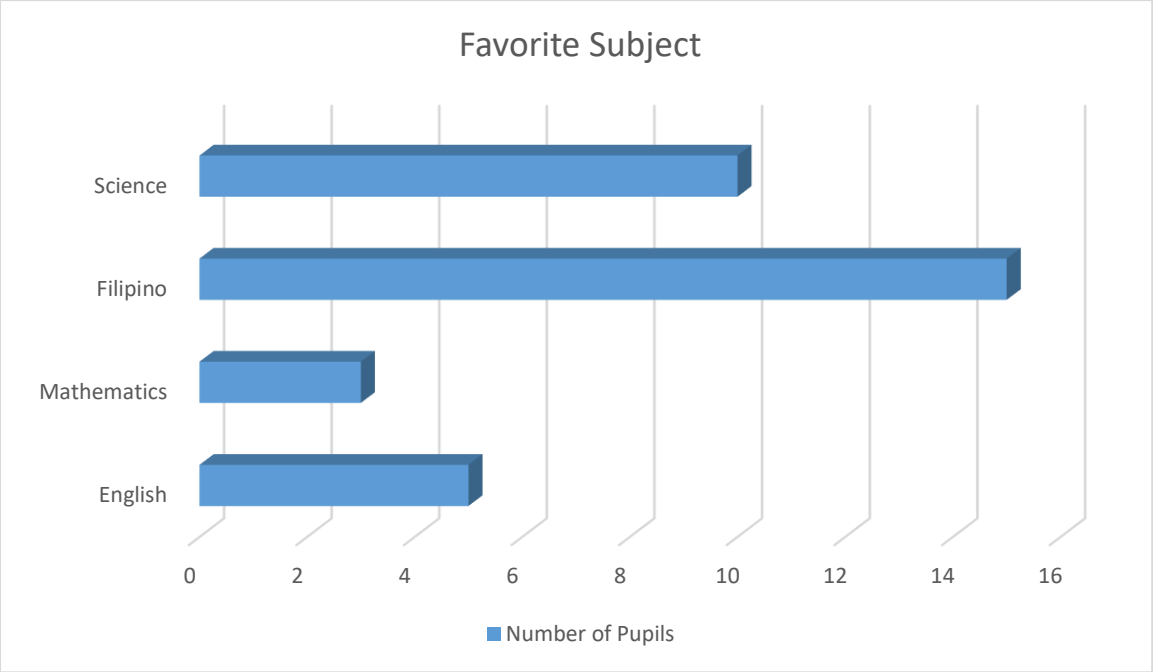
Here are the steps in solving problems involving two operations.

1. Find out what is asked.
2. Identify what are given.
3. Look for the hidden question.
4. Think of the operation (s) to be used.
5. Write the number sentence.
6. Do the operation inside the parenthesis first. Then perform the remaining operation.
7. Solve for the final answer.

What I Can Do (Application)

Activity 4

The Grade Three Quezon class favorite subject. They present in a graph.



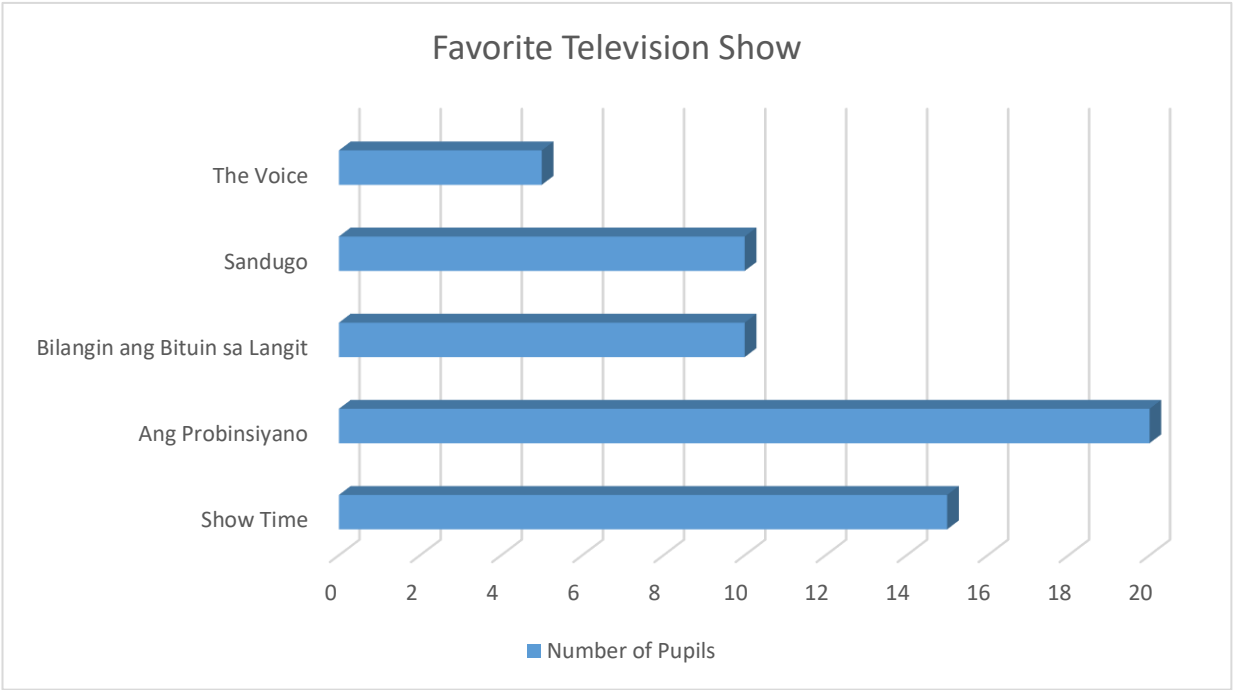
1. How many pupils like the Mathematics and English?

2. If there are 40 pupils in Grade class, 3 pupils like Mathematics, 5 pupils like English, how many pupils did not choose the above mentioned subject?

3. What is the total number of pupils like Science and Filipino subject?

Assessment *(post test)*

Use the graph to answer the following questions. The pupils favorite Television Show.



1. What is the total number of their most favorite and least favorite television shows?

2. How many pupils like Show Time and Ang Probinsiyano?

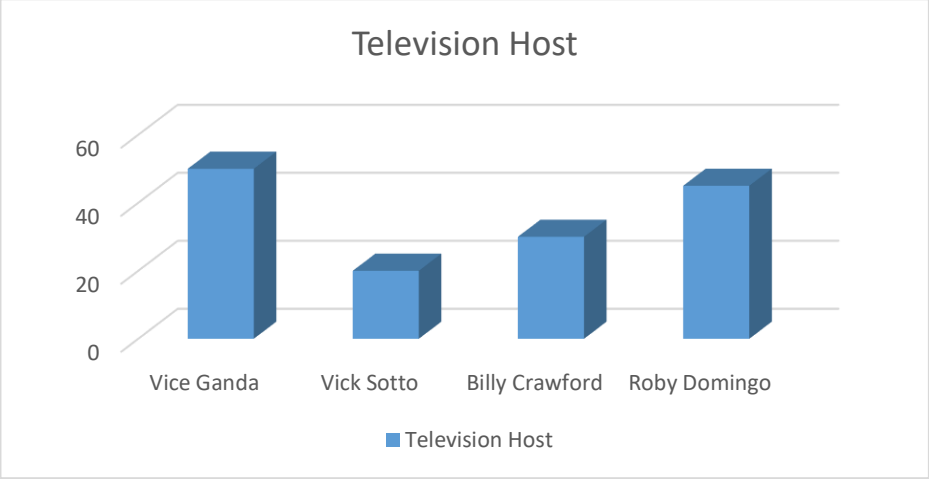
3. There are 250 students, 5 pupils like the Voice, 10 likes Sandugo and Bilangin ang Bituin sa Langit, 20 pupils like Ang Probinsyano and 15 pupils likes Show Time, how many students are not in favor of the above mentioned shows?

Additional Activities

(Supplementary activity/activities)

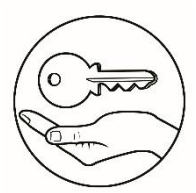
Look at the graph below. The graph shows their favourite show host on television.

The teacher's favorite television show host presented in a graph.



1. How many teachers like Vice Ganda and Roby Domingo?

2. In Mati South District District there are 280 teachers, if 50 teachers like Vice Ganda,20 teachers likes Vic Sotto,30 teachers likes Billy Crawford, and 45 teachers like Roby Domingo, how many teachers did not favor of the above given show host?



Answer Key

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