7

DepED
DEPARTMENT OF EDUCATION

Mathematics Activity Sheet Quarter 3 – MELC 2

Illustrating Subsets of a Line

REGION VI – WESTERN VISAYAS

Mathematics 7
Learning Activity Sheet Quarter 3 – MELC 2: Illustrating Subsets of a Line
First Edition, 2021

Published in the Philippines
By the Department of Education
Region 6 – Western Visayas

This **Learning Activity Sheet** is developed by DepEd Region 6 – Western Visayas.

Development Team of Math Activity Sheet

Writer: Rodie Mar L. Articona

Editors: Susan B. Pastera

Layout Artist: Mara Jamaica B. Floreno

Division of Cadiz City Management Team:
Ma. Lorlinie M. Ortillo
May P. Pascual
Susan B. Pastera
Rona F. de la Torre

Regional Management Team

Ramir B. Uytico
Pedro T. Escobarte, Jr.
Elena P. Gonzaga
Donald T. Genine
Aden A. Mosquera

Introductory Message

Welcome to Mathematics for Grade 7!

The **Learning Activity Sheet** is a product of the collaborative efforts of the Schools Division of Cadiz City and DepEd Regional Office VI - Western Visayas through the Curriculum and Learning Management Division (CLMD). This is developed to guide the learning facilitators (teachers, parents and responsible adults) in helping the learners meet the standards set by the K to 12 Basic Education Curriculum.

The **Learning Activity Sheet** is self-directed instructional materials aimed to guide the learners in accomplishing activities at their own pace and time using the contextualized resources in the community. This will also assist the learners in acquiring the lifelong learning skills, knowledge and attitudes for productivity and employment.

For learning facilitator:

The **Mathematics Activity Sheet** will help you facilitate the teaching-learning activities specified in each Most Essential Learning Competency (MELC) with minimal or no face-to-face encounter between you and learner. This will be made available to the learners with the references/links to ease the independent learning.

For the learner:

The **Mathematics Activity Sheet** is developed to help you continue learning even if you are not in school. This learning material provides you with meaningful and engaging activities for independent learning. Being an active learner, carefully read and understand the instructions then perform the activities and answer the assessments. This will be returned to your facilitator on the agreed schedule.

Learning Activity Sheets (LAS) 2a

Name of Learner: _____
Grade and Section: _____ Date: _____

MATHEMATICS 7 ACTIVITY SHEET
Illustrating Subsets of a Line

I. Learning Competency with Code

Illustrating subsets of a line. **(M7GE-IIIa-2)**

II. Background Information for Learners

The **line segment,** the **ray** and the points are the subsets of a line. A **segment** has two endpoints while a **ray** has only one endpoint and is extended endlessly in only one direction.

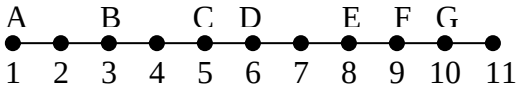
Definition of a Line Segment

In the figure, AD is a line segment. The points A, B, C, D lie on line segment AD. In notation, we write $\overline{AD}$ or simply AD. We can also name it as $\overline{DA}$ or DA.

The points A, B and C are on line segment AC. Point D is not included in the segment.

Definition of Congruent Segments

Segments are **congruent** if they have the same length.

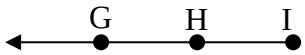


The following segments are congruent: *AB* and *DE*; *BD* and *DF*; *AC* and *DG*, *BE* and *CG*.

Definition of a Ray

The figure above is ray AB or ray AC. ***It is not correct to name it as ray BA or ray CA.*** We name a ray by its endpoint first and one point on it. In notation, we write $\overrightarrow{AB}$ or $\overrightarrow{AC}$.

In addition, the points A, B and C are on ray AC. However, point A is NOT on ray BC.



The figure above is ray *IH*. We can also name it as ray *IG*. In symbol, we write $\overrightarrow{IH}$. **We do NOT write it as $\overleftarrow{HI}$**. Points G, H, and I are on ray IG.

III. Accompanying DepEd Textbook and Educational Sites

Mathematics – Grade 7 Learner's Material, First Edition, 2014, Authors: Elizabeth R. Aseron; Angelo D. Armas; Allan M. Canonigo; Ms. Jasmine T. Dullete; Flordeliza F. Franscisco, PhD; Ian June L. Garces, PhD; Eugenia V. Guerra; Phoebe V. Guerra; Almira D., Lacsina; Rhett Anthony C. Latonio; Lambert G. Quesada, Ma. Christy R. Reyes; Rechilda P. Villame; Debbie Marie B. Verzosa, PhD; and Catherine P. Vistro-Yu, PhD, DepEd- IMCS
Elementary Algebra (Textbook for First Year), *Revised Edition, copyright 2009,SD Publications, Inc, and Julietea G. Bernabe,*
Authors: Julieta G. Bernab; Soledad Jose-Dilao, Ed.D., and Fernando B. Orines
WEBSITE: https://www.slideshare.net/rodsanton/gr-7-math-lm-q1-to-4

IV. Activity Proper
DAY 1

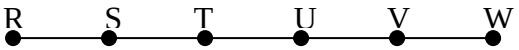
1. Directions / Instructions

For further information about this lesson, please refer to Mathematics Learner's Material pages 190-193

2. Exercises / Activities

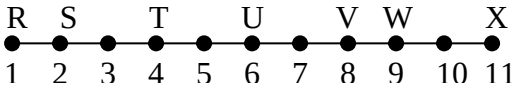
Exercise 1

Name 10 different segments on the figure below.



Exercise 2

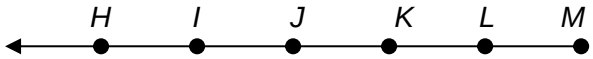
Identify the congruent segments using the figure below.



1. $\overrightarrow{RS} \cong$ _____
2. $\overrightarrow{SU} \cong$ _____
3. $\overrightarrow{TX} \cong$ _____
4. $\overrightarrow{UV} \cong$ _____
5. $\overrightarrow{ST} \cong$ _____

EXERCISE 3

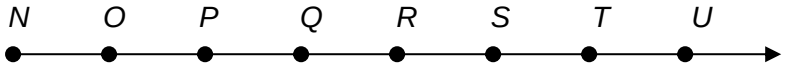
Answer the questions that follow:



This is ray *ML*.

1. List down the other 4 rays in ray ML

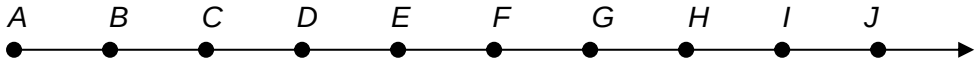
2. What are the points on ray *ML*? _____



The points *Q, R, S, T, U* are on ray *QR*.

The points *N, O, P* are not on ray *QR*.

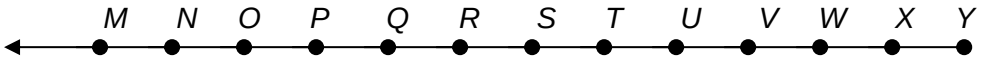
3. Name the other 3 rays in ray QR



4. What are the points on ray *DE*?

5. What are the points not on ray *DE*?

6. Name the other 5 rays in ray DE



7. What are the points on ray *QT*?

8. What are the points on ray *PQ*?

9. What are the points on ray *XU*?

10. What are the points on ray *SP*?

3. Guide Questions

a. How do we name the subsets of a line (ray and line segment)?
b. In naming a ray, why do you think that the endpoints must come first before the other points?
c. When can we say that the two segments are congruent?

V. **Reflection**

Answer the following:

1. Do you believe that line segments, rays and congruent lines would affect your daily insights about things and matters? Explain.
2. What did you learn from the lesson and how are you going to apply it in real-life situations?

_____
_____
_____
_____

VI. Answer Key

Exercise 1

RS. RT, RU, RV, RW, ST, SU, SV, SW, TU,TV, TW, UV, UW, VW

Exercise 2

1. VW
2. TV
3. SW, RV
4. ST, TU, WX
5. TU, UV, WX

Exercise 3

1. ray MK, MJ, MI, MH
2. points M,L, K, J, I and H
3. ray QS, QT, QU
4. points D, E, F, G, H, I, and J
5. points A, B and C
6. ray DF, DG, DH, DI, and DJ
7. points Q, R, S, T, U, V, W, X, Y
8. points Q, R, S, T, U, V, W, X
9. points X, W, V, U, T, S, R, Q, P, O, N, and M
10. points S, R, Q, P, O, N, and M

Learning Activity Sheets (LAS) 2b

Name of Learner: _____
Grade and Section: _____ Date: _____

MATHEMATICS 7 ACTIVITY SHEET
Illustrating Subsets of a Line

I. Learning Competency with Code

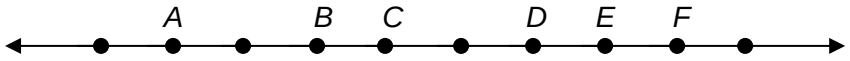
Illustrating subsets of a line. **(M7GE-IIIa-2)**

II. Background Information for Learners

Since you already have an idea about what a set is, we can move on to understand how to work with them. Is there a way to merge two *sets* together? What is the intersection of sets and how do we find the intersection of two sets? Should we even be allowed to add two sets together? Here we will find out all the answers!

Lines, segments and rays are all sets of points thus, we can perform **set operations** on these sets.

Use the figure below to determine the part of the line being described by the union or intersection of two segments, rays, or segment and ray:



Example: $\overrightarrow{DE} \cup \overrightarrow{CF}$ is the set of all points on the ray *DE* and ray *CF*. Thus, all these points determine ray $\overrightarrow{CD}$.

$\overrightarrow{BC} \cap \overrightarrow{ED}$ is the set of all points common to ray $\overrightarrow{BC}$ and ray $\overrightarrow{ED}$. The common points are the points on the segment *BE*.

$\overline{AB} \cup \overline{DF}$, the points A, B, D, E, and F are included in the set. For $\overrightarrow{BC} \cap \overrightarrow{ED}$, the points included are points B, C, D, and E.

III. Accompanying DepEd Textbook and Educational Sites

Mathematics – Grade 7 Learner's Material, First Edition, 2014, Authors: Elizabeth R. Aseron; Angelo D. Armas; Allan M. Canonigo; Ms. Jasmine T. Dullete; Flordeliza F. Franscisco, PhD; Ian June L. Garces, PhD; Eugenia V. Guerra; Phoebe V. Guerra; Almira D., Lacsina; Rhett Anthony C. Latonio; Lambert G. Quesada, Ma. Christy R. Reyes; Rechilda P. Villame; Debbie Marie B. Verzosa, PhD; and Catherine P. Vistro-Yu, PhD, DepEd- IMCS
WEBSITE: https://www.slideshare.net/rodsanton/gr-7-math-lm-q1-to-4

IV. Activity Proper

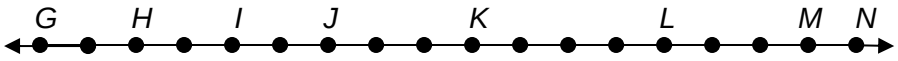
Day 2

1. For further information about this lesson, please refer to Mathematics Learner's Material pages 190-193

2. Exercises / Activities

Exercise 1

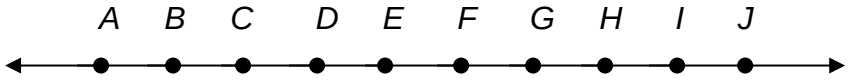
Understand and analyze the notation carefully. Identify all the points that are included in the sets .



1. $\overline{HJ} \cup \overline{KL} =$ _____
2. $\overline{GM} \cap \overline{I\,L} =$ _____
3. $\overline{HM} \cup \overline{KN} =$ _____
4. $\overline{GJ} \cap \overline{I\,K} =$ _____
5. $\overline{LN} \cap \overline{JM} =$ _____

Exercise 2

Determine the subset of the line in each item.



Example: $\overrightarrow{FG} \cap \overrightarrow{DE} = \overrightarrow{FG}/\overrightarrow{F\,J}$

$\overrightarrow{FC} \cap \overrightarrow{DG} = \overline{DF}$

1. $\overrightarrow{BC} \cap \overrightarrow{ED} =$ _____
2. $\overrightarrow{AF} \cap \overrightarrow{HD} =$ _____
3. $\overrightarrow{CG} \cap \overrightarrow{DI} =$ _____
4. $\overrightarrow{AD} \cup \overrightarrow{BE} =$ _____
5. $\overrightarrow{JF} \cap \overrightarrow{HD} =$ _____

3. Guide Questions:

a. How can we determine whether the solution is a ray or a segment?
b. How do we identify the points given the operation of sets?

V. Reflection

Answer the following:

a. Do you think that understanding the operation on subsets of a line can improve your perception to the people around? How?
b. If given a chance, how would you change yourself using the definition of a ray? Where would be your endpoints? How would you decide your endless goal?

_____
_____
_____
_____

VI. Answer Key

Exercise 1

1. Points H, I, J, K, and L
2. Points I, J, K, and L.
3. Points H, I, J, K, L, M, and N
4. Points I and J
5. Points L and M

Exercise 2

1. $\overline{BE}$
2. $\overline{DH}$
3. $\overrightarrow{DE}$ or $\overrightarrow{DF}$ or $\overrightarrow{DG}$ or $\overrightarrow{DH}$ or $\overrightarrow{DI}$ or $\overrightarrow{DJ}$
4. $\overrightarrow{BC}$ or $\overrightarrow{BD}$ or $\overrightarrow{BE}$ or $\overrightarrow{BF}$ or $\overrightarrow{BG}$ or $\overrightarrow{BH}$ or $\overrightarrow{BI}$ or $\overrightarrow{BJ}$
5. $\overrightarrow{HG}$ or $\overrightarrow{HF}$ or $\overrightarrow{HE}$ or $\overrightarrow{HD}$ or $\overrightarrow{HC}$ or $\overrightarrow{HB}$ or $\overrightarrow{HA}$