JANUARY
Makugihon

FEBRUARY
Mahigugmaon

MARCH
Matinabangon

APRIL
Matinahuron

MAY
Mahapsay og Malimpyo

JUNE
Maabtik og Masunod sa Ihsaktong Oras

JULY
Maantigo og Maabilidad

AUGUST
Maginhunahunaon para sa Uban

SEPTEMBER
Madaginoton

OCTOBER
Matinud-anon

NOVEMBER
Masaligan

DECEMBER
Maalampuon

Republic of the Philippines
Department of Education
Regional Office IX, Zamboanga Peninsula

5

$\mathcal{Z}$est for $\mathcal{P}$rogress
$\mathcal{Z}$eal of $\mathcal{P}$artnership
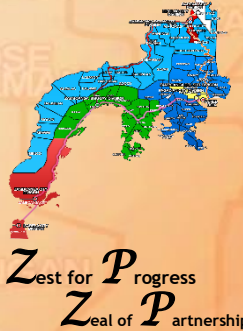
MATHEMATICS
4th QUARTER – Module 1:
AREA OF A CIRCLE

Name of Learner: _____

Grade & Section: _____

Name of School: _____

Mathematics – Grade 5
Alternative Delivery Mode
Quarter 4 - Module 1: AREA OF A CIRCLE
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Introductory Message

This **Self – Learning Module** (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge of lessons in each SLM. This will tell you if you can proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for a better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you with your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. Read the instructions carefully before performing each task.

If you have any questions using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.

What I Need to Know

This module was written to aid in the measurement lesson of the fourth quarter of grade 5 mathematics. It covers the key concepts of an area of a circle.

This module was designed to cater to diverse learners' academic needs in achieving and improving the twin goals of mathematics in basic education levels, which are critical thinking and problem-solving. The language used recognizes the vocabulary level of grade 5 students. The lessons followed developmentally sequenced teaching and learning processes to meet the curriculum requirement.

After going through the module, you are expected to:
● find the area of a given circle. **(M5ME-IVa-74)**
● solve routine and non-routine problems involving the area of a circle. **(M5ME-IVb-75)**

Believe that learning can continue amidst the health crisis. Good luck, stay safe, and God bless.

What I Know

Directions: Choose the letter that corresponds to your answer. Write the letter of your answer on a separate sheet.

1. What is the area of a circle with a diameter of 5 meters?
   A. 18.625 m²   B. 19.625 m²   C. 20.62 m²   D. 19.526 m²
2. If a circle has a diameter of 46 centimeters, what is its area?
   A. 166.1 cm²   B. 1 661.06 cm²   C. 1 611.06 cm²   D. 1 661.60 m²
3. Grandma has an old family recipe for blueberry pancakes with 6 inches in diameter. What is the area of the pancake?
   A. 28.26 in²   B. 26.28 in²   C. 22.86 in²   D. 82.26 in²
4. Myrna is crocheting a round table cover with a radius of 18.5 cm. What will be the area of the finished table cover?
   A. 1 075.66 cm²   B. 1 074.665 cm²   C. 107.46 cm²   D. 1 047.665 cm²
5. From a circular sheet of a radius of 5 cm, a circle of radius 3 cm is removed. Find the area of the remaining sheet.
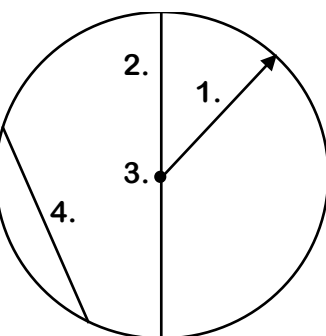   A. 12.56 cm²   B. 13 cm²   C. 15.53 cm²   D. 17 cm²

LESSON | AREA OF A CIRCLE

What's In

Can you still remember what the parts of a circle are? Look at the figure below. Label the parts of a circle. Choose your answers from the box. Write your answer on a separate sheet of paper.

Diameter	Chord	Center	Radius

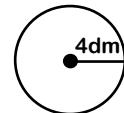1. _____

2. _____

3. _____

4. _____

What's New

Read and understand the problem below.

> Everytime it rains, Mrs. Santos saves water in a big jar called "Tapayan". She covers them with a circular galvanized iron with a radius of 4 dm. What is the area of the circular cover?

Let us first visualize the problem through the illustration on the right. This shows a circle with a radius of 4dm. In finding the area of the circular cover of the "Tapayan." Word problems like this can be answered by using the 4-step plan.

What is It

Let us answer the problem using the 4-step plan.

> **PROBLEM:** Every time it rains, Mrs. Santos saves water in a big jar called "Tapayan." She covers them with a circular galvanized iron with a radius of 4 dm. What is the area of the circular cover?

UNDERSTAND
- **What is asked?** What is the area of the circular cover?
- **What is the given fact?** The radius of the circular cover is 4 dm.

PLAN
- Use the formula in finding the area of a circle $A = \pi r^2$, where π = 3.14; and r is radius.

SOLVE
- Substitute the value of r = 4 dm
  $A = \pi r^2$
  $A = (3.14) \times (4\ dm \times 4dm)$
  $A = 3.14 \times 16\ dm^2$
  $A = 50.24\ dm^2$

CHECK AND LOOK BACK
- The area of the circular cover of tapayan is 50.24 dm².

Let us have another example!

> **PROBLEM: :** If the diameter of a circular wall clock is 30 cm. What is the area of the clock?

UNDERSTAND
- **What is asked?** What is the area of the wall clock?

- **What is the given fact?** A wall clock with a diameter of 30 cm.

PLAN
- Use the formula for finding the area of a circle $A = \pi r^2$, where $\boldsymbol{\pi}$ = 3.14;and r is radius. Since the diameter is given, divide it by 2 to get its radius.

SOLVE
- Substitute the value of d = 30 cm

$r = \dfrac{d}{2} = \dfrac{30}{2} = 15\ cm$

$A = \pi r^2$

$A = (3.14) \times (15 \times 15)$

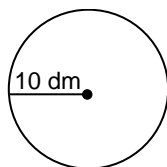$A = 3.14 \times 225\ cm^2$

$A = 706.5\ cm^2$

CHECK AND LOOK BACK
- The area of the wall clock is 706.5 cm^2.

What's More
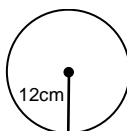
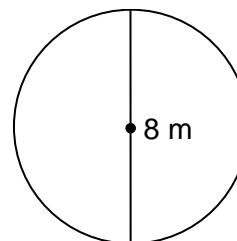**A. Directions:** Find the area of each circle.

1.

10 dm

2.

12cm

3.

8 m

B. Directions: Solve the following problems.

4. A circular fountain with a 5 m radius lies along the center of a circular park with a 70 m radius. Calculate the total walking area available to pedestrians visiting the park.

5. A therapy pool in a water spa is in the shape of a 7 m wide circle. How much material would it take to cover it?

What I Have Learned

- The area of a circle with pi, radius, or diameter can be solved by the formula Area of a circle = pi x radius x radius or $A = \pi r$. It is the number of the square unit inside that circle.

- The value of π is constant 3.14.

What I Can Do

Directions: Solve each problem using the 4-step plan. Write your answers on a separate sheet of paper.

1. Caleb skates at a circular rink that has a radius of 5 meters. If he uses 3.14 as π, What is the area of the skating rink?

2. Jessie is making a circular tablecloth for an art project. She wants half of the tablecloth to be made of plain-colored fabric and a half to be made of printed fabric. If the tablecloth's diameter will be 6 feet, what will be the area of the printed part?

Assessment

Directions: Read each question carefully. Write the letter of the correct answer on a separate sheet.

1. What is the area of a circle if the radius is 13 cm?
   A. 5306.6 cm²   B. 53.066 cm²   C. 530.66 cm²

2. If a buko pie's diameter is 10 cm, what is its area?
   A. 76.50 cm²   B. 77.50 cm²   C. 78.50 cm²

3. A dinner plate has a radius of 6 cm. what is its area?
   A. 114.01 cm²   B. 113.04 cm²   C. 115.04 cm²

4. Grandma has an old family recipe for blueberry pancakes with 18 inches in diameter. What is the area of the pancake?
   A. 254.34 in²   B. 1017.36 in²   C. 56.52 in²

5. Myrna is crocheting a round table cover with a radius of 18.5 cm. What will be the area of the finished table cover?
   A. 1 075.66 cm²   B. 1 074.665 cm²   C. 107.46 cm²

Answer Key

What I Know:

1. B	3. A	5. A
2. B	4. B	

What's In:

1. Radius   2. Diameter   3. Center   4. chord

What's More:

1. 314 dm²	3. 50.24 m²	5. 153.86 m²
2. 452.16 cm²	4. 15 307.5 m²	

What I Can Do:

1. 78.5 m²
2. 14.13 ft²

Assessment:

1. C	2. C	3. B	4. A	5. B

References:

Carmelita C. Coronel and Nelia D. Bamba, (2010) Mathematics for a Better Life: Teacher's manual mathematics grade five, SD Publications, Inc. 254-255.

Angelina P. Lumbre et. al., 21st Century MATHletes 5, ed. Mercurio T. Elenzano et. al. Vibal Group Inc. 2016, 286-288; 294-301.

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