SS2: Develop and apply a formula for determining the area of:
triangles
parallelogram
circles

I can:

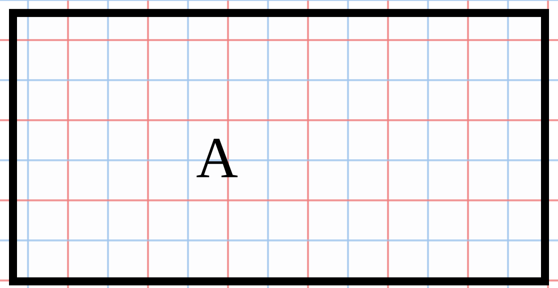
- Explain how to estimate the area of a parallelogram.
- Illustrate and explain how the area of a rectangle can be used to determine the area of a parallelogram.
- Generate a rule to create a formula for determining the area of a parallelogram.
- Apply a formula for determining the area of a given parallelogram.
- Explain how to estimate the area of a triangle.
- Illustrate and explain how the area of a rectangle can be used to determine the area of a triangle.
- Generalize a rule to create a formula for determining the area of a triangle.
- Apply a formula for determining the area of a given triangle.
- Explain how to estimate the area of a circle.
- Illustrate and explain how the area of a parallelogram or a rectangle can be used to determine the area of a circle.
- Generalize a rule to create a formula for determining the area of circles.
- Apply a formula for determining the area of a given circle.
- Solve a given problem involving the area of triangles, parallelograms and/or circles.

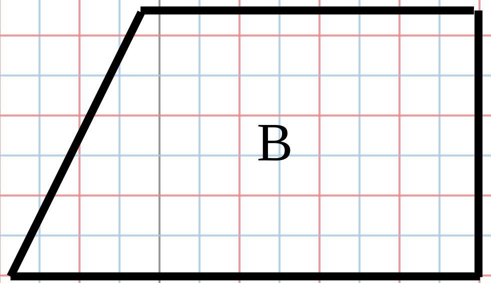
Area of Parallelograms

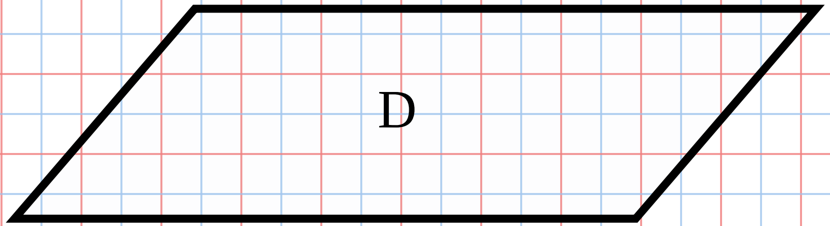
We will learn how to transform a parallelogram into a rectangle.

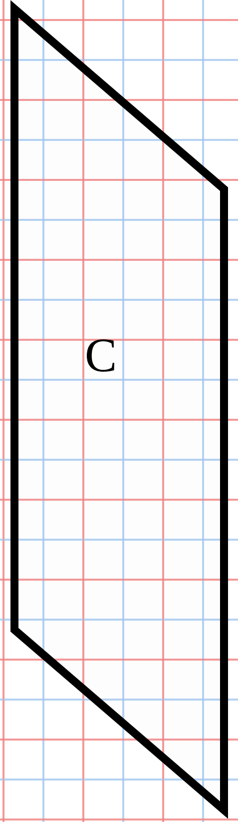
We will find a formula to determine the area of a parallelogram.

We will calculate the range of parallelograms.









Answer the following questions in your math duotang.
Which of these figures are parallelograms?
How do you know?

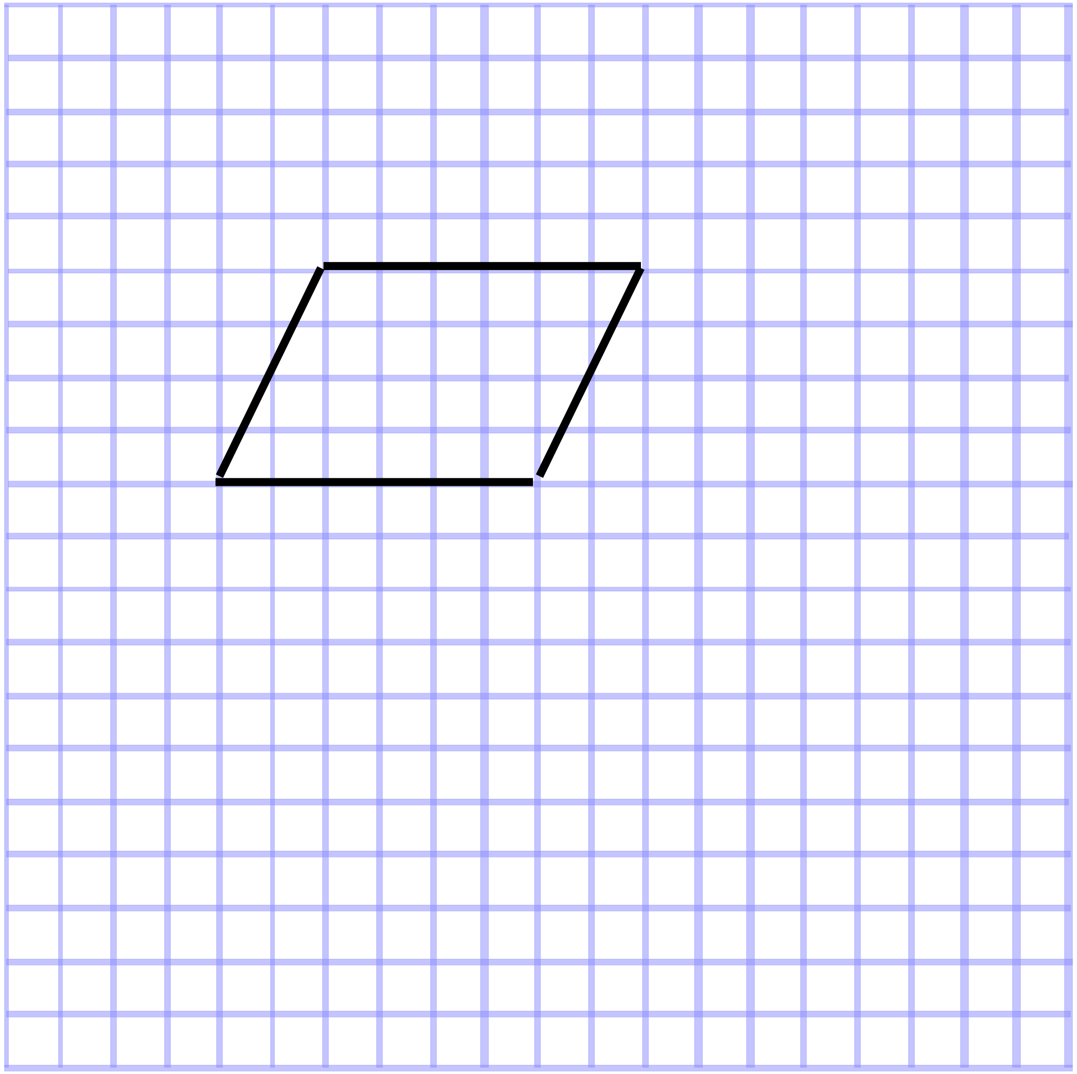
What are the similarities between Figures C and D?
What are the differences?

Explore!

You need scissors and squared paper (1 cm grid paper)

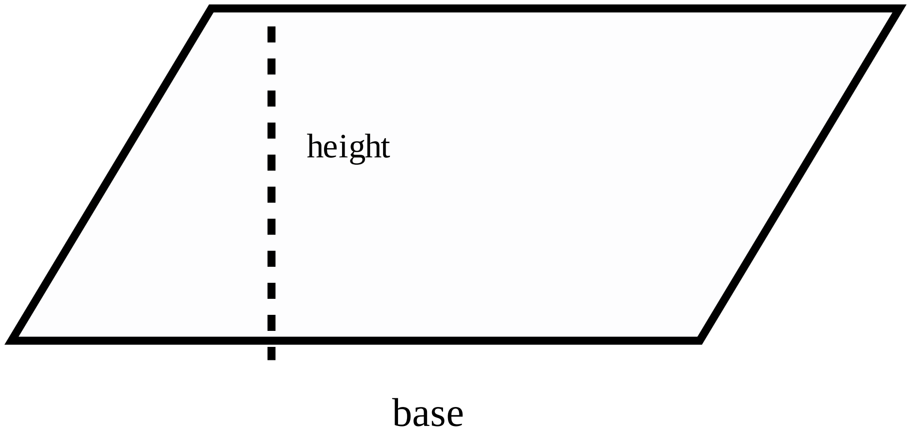
In partners, follow the steps on page 139 for each figure (A, B, C).

See Connect page 140-141 for further clarification.

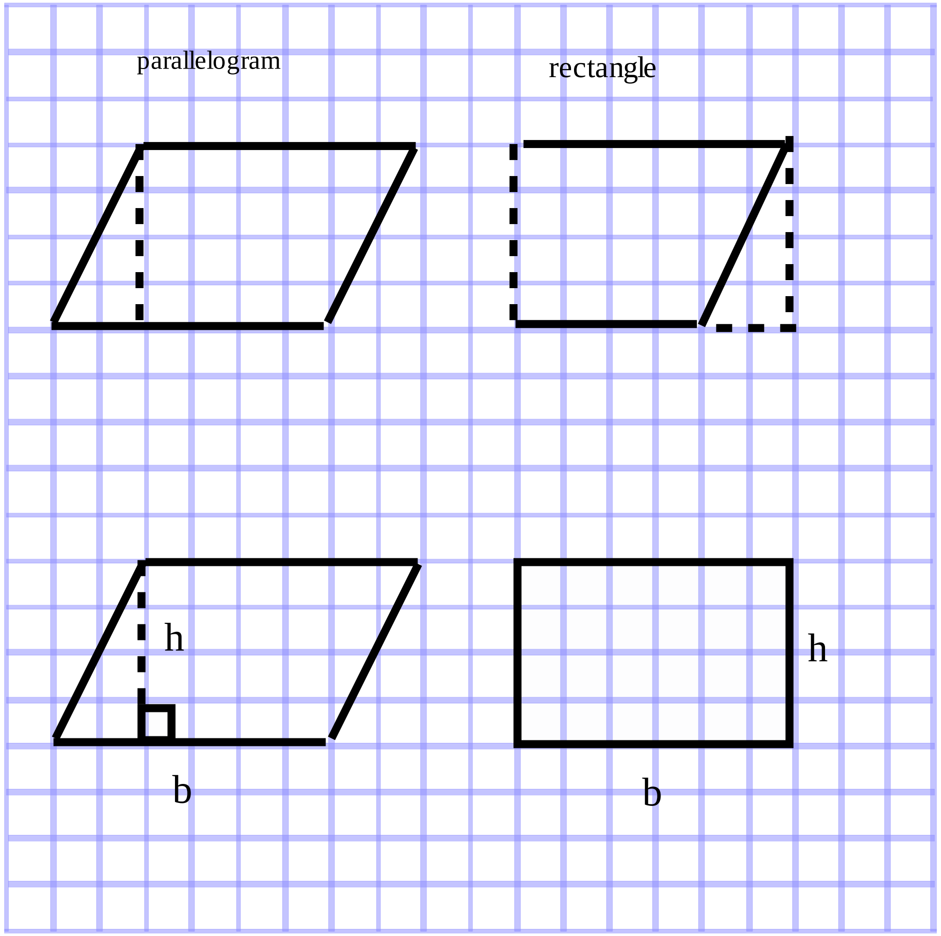


Read/take notes from the following 4 slides as well as from Connect page 140-141.

To estimate, count the squares whole and the parts of squares that occupy half or more of a square.



Any side of a parallelogram is a base.
The height of a parallelogram is the length of a line segment which connects the parallel sides and is perpendicular to the base.



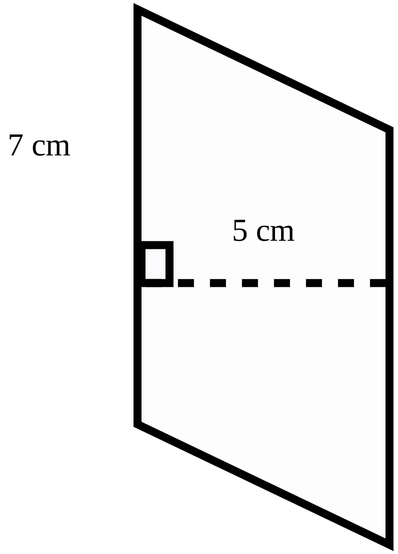
Do not forget that rectangles and squares are parallelograms!

When a parallelogram is not a rectangle, you can "cut" it and move the pieces to form a rectangle.

This parallelogram and this rectangle have the same area because the base and the height are the same.
You know that you have to multiply the base by the height
to find the area of a rectangle.

NOTE: to calculate the area of a parallelogram, multiply the base by the height. ($A = bh$) or $A = b \times h$

Example!

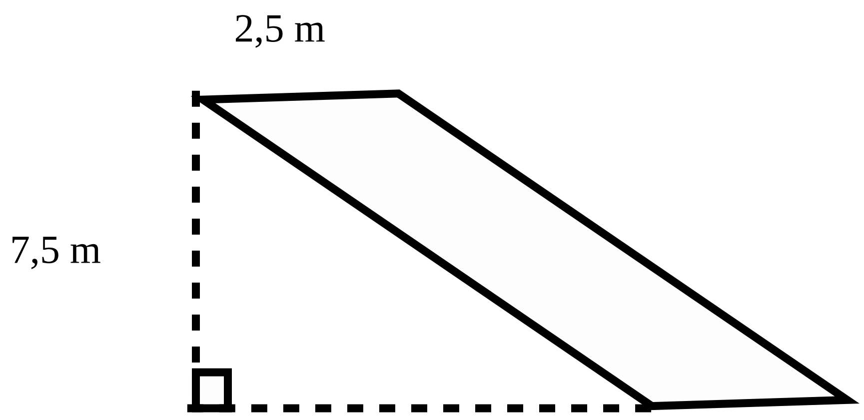


A = bh
A = 7 cm x 5 cm
A = 35 **cm^2**

Do not forget that the units for the area are square!

Find a partner and try to solve!

Sometimes, the height will be drawn outside the parallelogram!



See your facilitator to ensure you solved this example correctly.

Worksheet
4.3 Pages 84,85,86

Practice Questions- to complete in your math duotang

1. Complete questions 2, 5, 8 and 10 on pages 141 and 142.
   **Check your answers-page 360.

2. To hand-in: On 1 cm squared grid paper, draw a parallelogram with an area of 24 cm^2. Then, draw 3 other parallelograms with the same area.

SS2 Journal Question # 1

See your facilitator for this journal question.

Area of Triangles

We will explore the relationship between triangles and parallelograms.

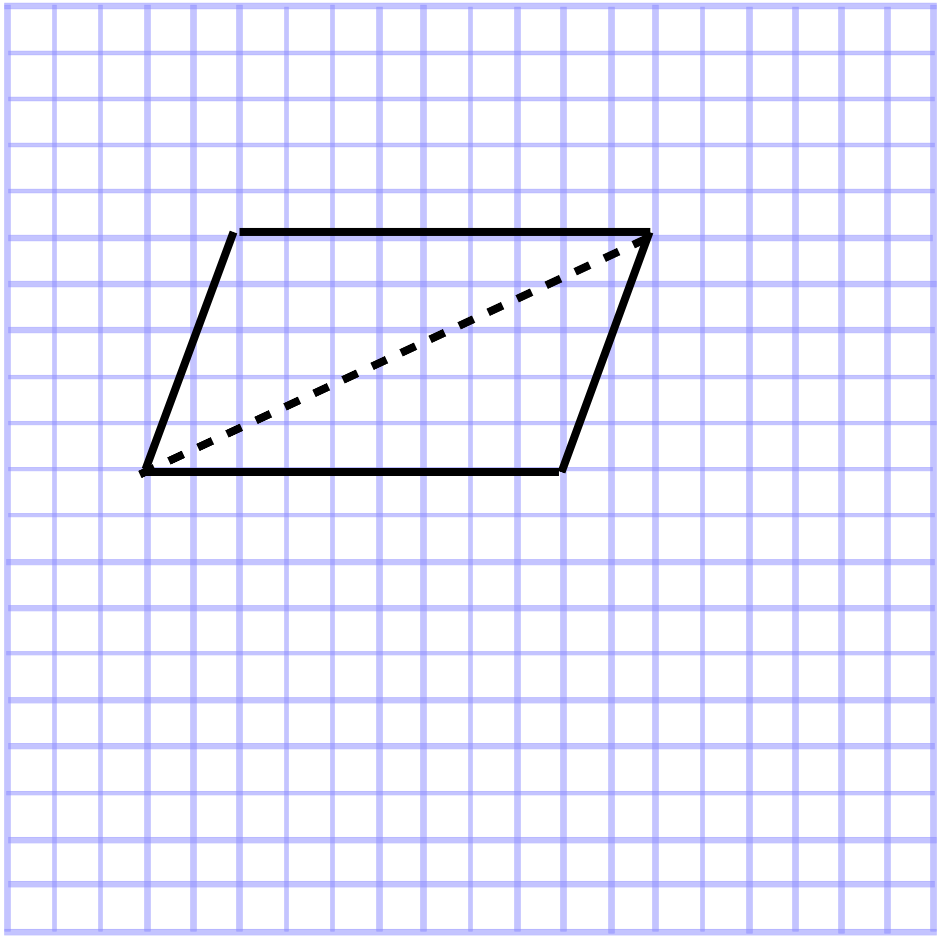
We will learn the formula to determine the area of a triangle.

We will calculate the area of a triangle.

Explore!
You need a geoboard, elastic bands and dot paper.

In partners, follow the steps on page 143 to explore the relationship between triangles and parallelograms.

In your math dutoang, write down your observations. Then, review slides 14 and 15 as well as pages 144-145 (Connect). Takes notes.

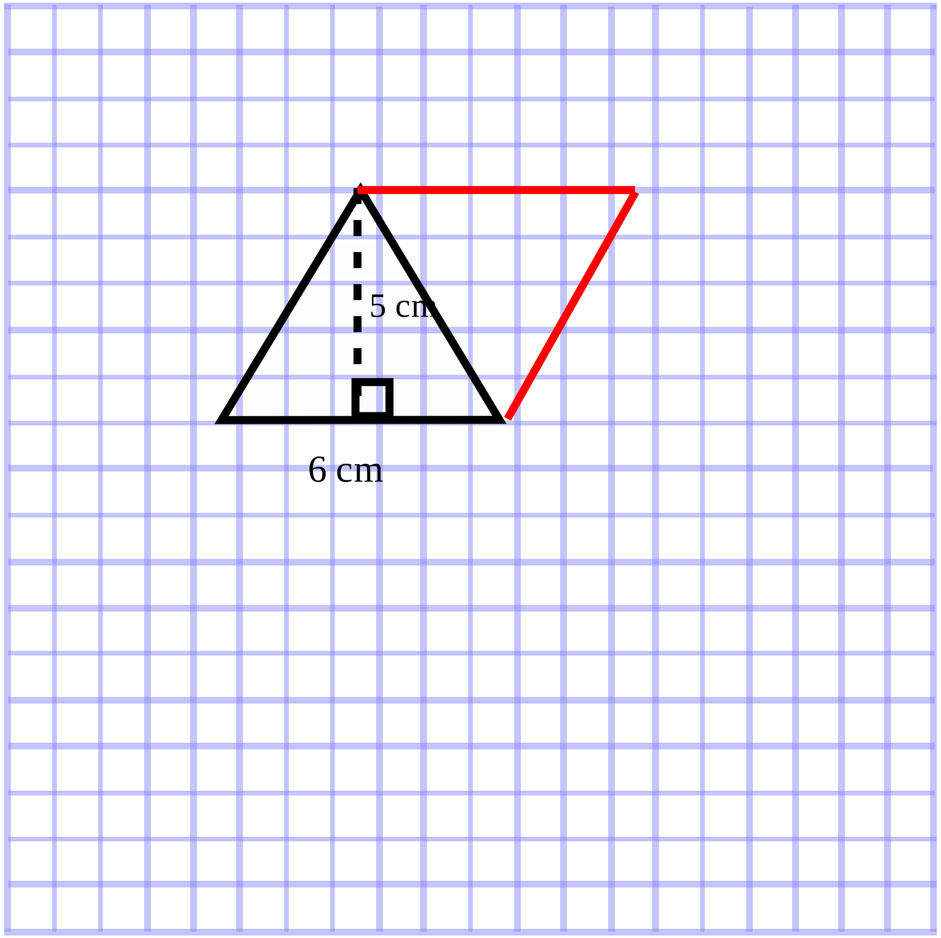


Read and take notes…
If you trace a diagonal in a parallelogram, you get two congruent triangles.

Congruent triangles have the same area.

The area of the two congruent triangles equals the area the parallelogram that contains them.

Thus, the area of a triangle is equal to ½ of the parallelogram.



Read and take notes:

To determine the area of this triangle:

Construct a congruent triangle on one side of the triangle to form a parallelogram.

The area of the parallelogram is A = base x height, or A = bh.
So, A = 6 cm x 5 cm = 30 cm²
The area of the parallelogram is 30 cm².
Therefore, the area of the triangle is ½ of 30 cm² = 15 cm².

Copy this slide into your math dutoang.

You can write a formula of the area of a triangle.

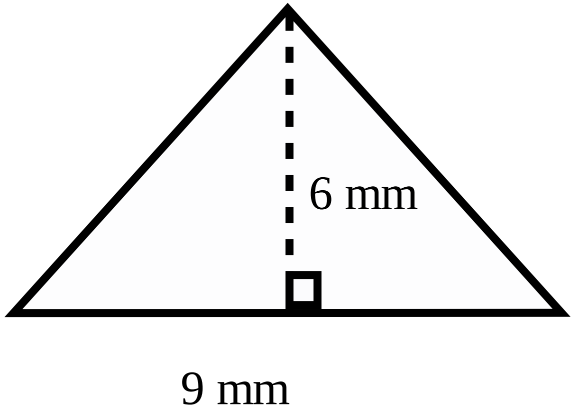
The area of a parallelogram is:

A = base x height

So, the area of a triangle is:

A = half of base x height

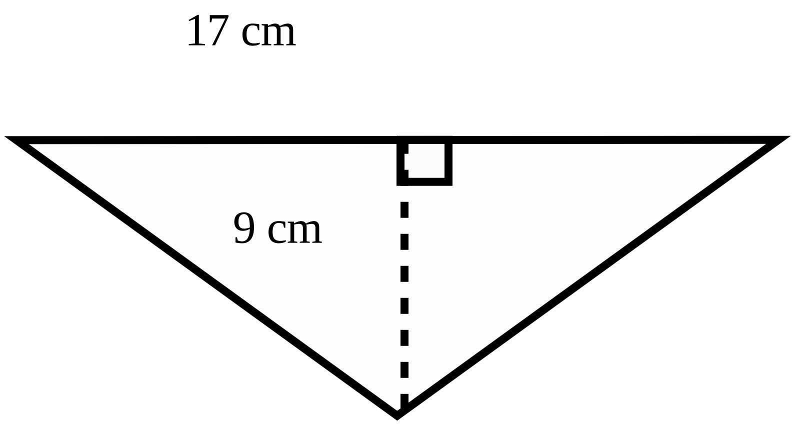
A = bh ÷ 2, which is also written as A = $\frac{bh}{2}$



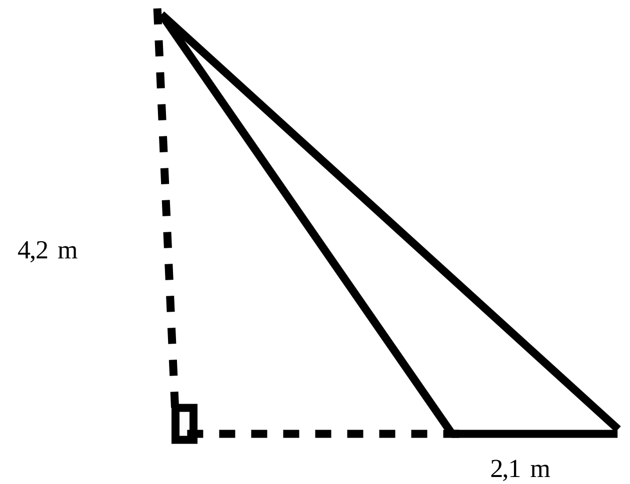
$$A = \frac{bh}{2} = \frac{9mm \times 6mm}{2}$$

$$= \frac{54\ mm^2}{2} = 27\ mm^2$$

Find the area of the following triangles (with a partner). Show your facilitator you final answers before going to the next slide.



2.



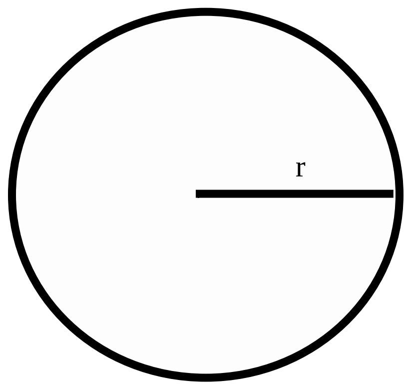
Practice time- in your math duotang, determine the area of each triangle in question 2 and 5 on page 145-146.

SS2 Journal Question # 2

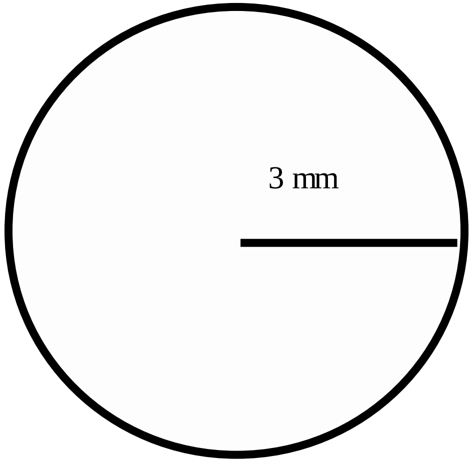
See you facilitator for this journal question.

Area of a Circle- with partner read page 149 and 150. Take notes.

$$(A) = \pi r^2$$



Do the example on page 150 in your math duotang and discuss with your partner. If unclear, please see your facilitator for further guidance.



In you math duotang find area.

Show your facilitator your response before beginning the practice questions.

Practice Time-to be completed in your math duotang

Complete Questions 1, 2, and 5 on page 151.

SS2 Journal Question # 3

See your facilitator for this journal question.