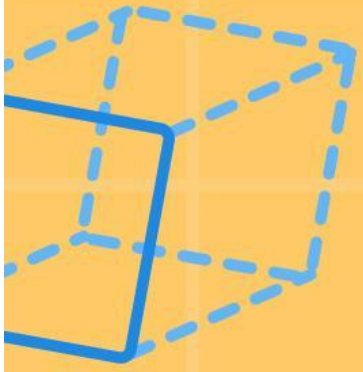
WORKSHEET

SESSION-I

Pythagorean Theorem



Name:

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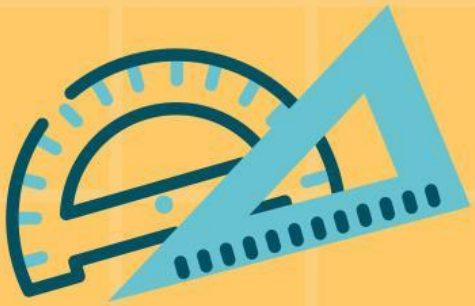

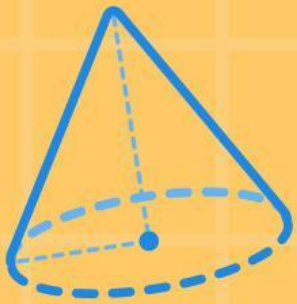

Basic Competencies

3.6 Explain and prove the Pythagorean theorem and Pythagorean triples

Indicator

3.6.1 **Solve** (C4) problems that require the application of the Pythagorean theorem

Learning Objectives

1. After students and the teacher view the PowerPoint presentation (TPACK) delivered by the teacher and engage in a discussion (C/Collaboration), students (A) will be able to solve (C4) problems that require the accurate application of the Pythagorean theorem (D).

Instructions for Use

- Read this Student Worksheet (LKPD) carefully and thoroughly.
- Complete all the instructions and problems provided.
- Work through each problem; if you encounter any difficulties or find something unclear, ask your teacher for clarification.
- Answer the questions thoroughly and correctly.
- Pray before studying so that you may gain useful knowledge.

Good luck with the assignment!

Orienting students to the problem

Mr. Anton wants to hang a large picture frame on the wall of his house. To reach the hanging point, which is 2 meters above the floor, he leans a ladder against the wall. The bottom of the ladder is 1,5 meters from the wall. How long is the ladder Mr. Anton is using?

Organizing students for learning

1. The teacher ensures that the students understand their assignments

Guiding individual and group investigations

1 Draw an illustration that matches the situation!

2 Based on the triangle drawing you have created, indicate the side representing the ladder (hypotenuse), the wall (vertical side), and the floor (base).

3 Based on the figure, this triangle is a ...

a. Acute triangle
c. Right triangle
b. Scalene triangle
d. Obtuse triangle

4 If triangle ABC is a right triangle with the right angle at point C, and the lengths of its sides are BC = 6 cm, AC = 8 cm, and AB = 10 cm, draw a square on each side of the triangle corresponding to the length of that side. Then, label each square as follows:

1. Square 1, which is square BCDE on side BC
2. Square 2, which is square ACFG on side AC
3. Square 3, which is square ABHI on side AB

5 Calculate the areas of squares 1, 2, and 3!

Area of square 1 = ... m^2

Area of square 2 = ... m^2

Area of square 3 = ... m^2

6 Consider the areas of these three squares. Prove whether the area of the largest square is equal to the sum of the areas of the two smaller squares. Use this to prove the Pythagorean Theorem!

Area of Square 3 = Area of Square 1 + Area of Square 2

$100 = \ldots + \ldots$

$\ldots^2 = \ldots^2 + 8^2$

$\ldots^2 = BC^2 + \ldots^2$

$c^2 = \ldots^2 + \ldots^2$

7 Now that you know the formula for the Pythagorean Theorem, use it to calculate the length of the ladder Mr. Anton needs to hang the picture frame!

$c^2 = \ldots^2 + \ldots^2$

$c^2 = \ldots^2 + \ldots^2$

$c^2 = \ldots + \ldots$

$c = \sqrt{\ldots}$

$c = \ldots$ cm

8 If Mr. Anton wants to hang a picture frame on the wall of his house at a height of 1,5 meters from the floor and uses a ladder of the same length as before, what is the distance from the bottom of the ladder to the wall?

$c^2 = \ldots^2 \ldots \ldots^2$

$c^2 = \ldots^2 \ldots \ldots^2$

$c^2 = \ldots \ldots \ldots$

$c = \sqrt{\ldots}$

$c = \ldots$ cm

Developing and presenting the final project

After completing the previous steps, organize your findings for presentation!

Analyzing and evaluating the problem-solving process

9 Based on the experiments and calculations you've done, what conclusions can we draw about the Pythagorean Theorem?

10 What are the steps for solving contextual problems that require the application of the Pythagorean Theorem?