


Lesson 12: Pythagoras Theorem

Grade 9 (2 hours)



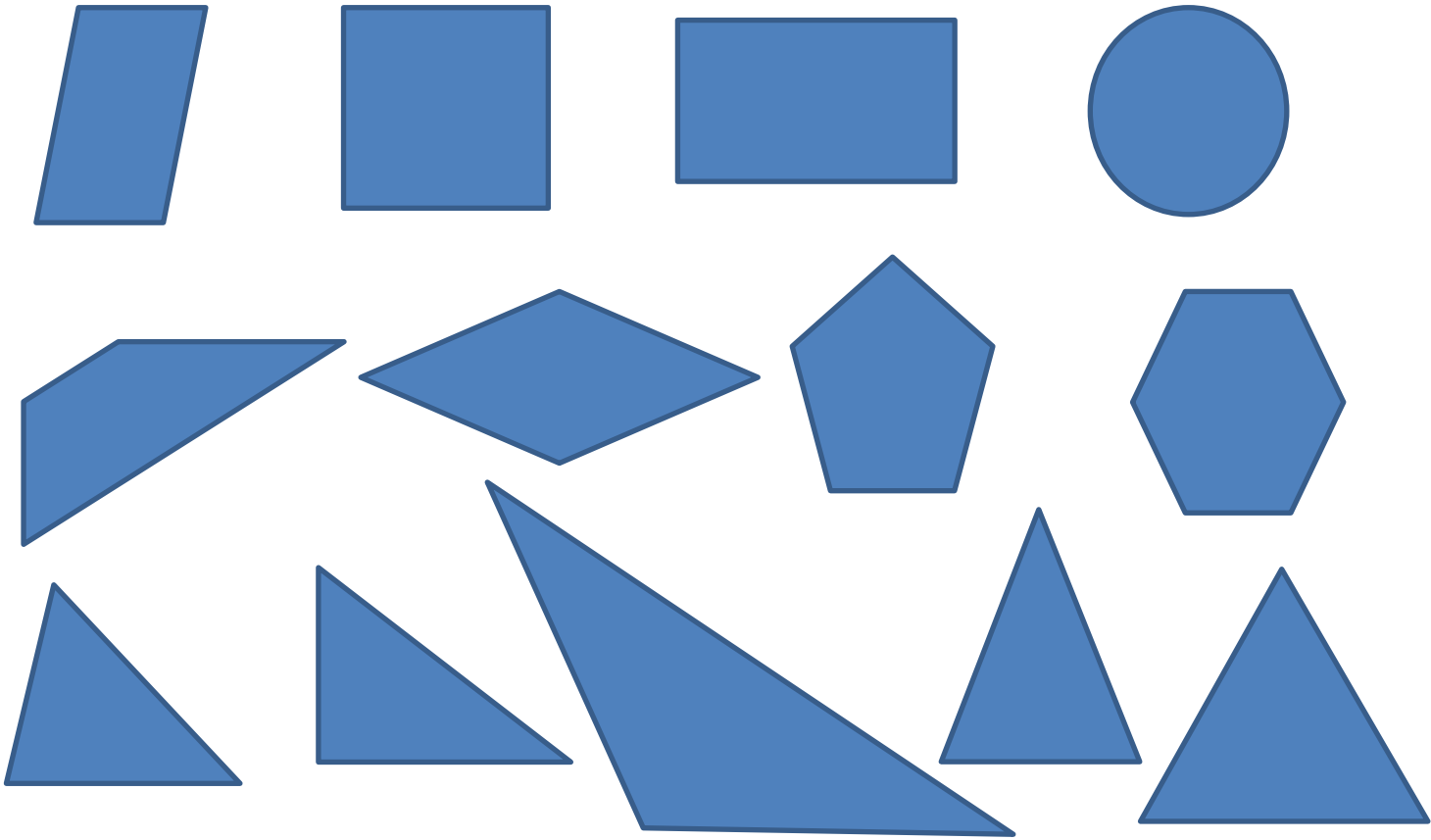
1. Contents
 - a. Observation
 - b. Theorem
2. Objectives: after learning this lesson, students will be able to
 - a. Create right triangle
 - b. Identify the characteristics of right triangle
 - c. Calculate the side of right triangle correctly by using Pythagoras theorem
3. Materials
 - a. Video about Pythagoras background and how to show the theorem (show in LCD)
 - i. <https://www.youtube.com/watch?v=RwxZ21qRdMg&pbjreload=10> (Pythagoras background)
 - ii. <https://www.youtube.com/watch?v=YompsDIEdtc>
 - b. Strings
 - c. Worksheets
 - d. Squares, right triangles, and polynomial paper.
4. Processes
 - a. Class administration

Lesson review (10 mins)	New lesson (40 mins)	Practice (40 mins)	Homework (5 mins)
➤ Students in group of 4-6 look at the pictures in worksheet #1 and describe the type and	➤ Watched a video about Pythagoras background (https://www.youtube.com/watch?v=RwxZ21qRdMg&pbjreload=10) ➤ Students work in the same group, get the strings with 12 continuous logs to create triangles. 	➤ Worksheet #4: do I. a. and one II. As the examples	➤ Give worksheet #5 as their homework (individually)

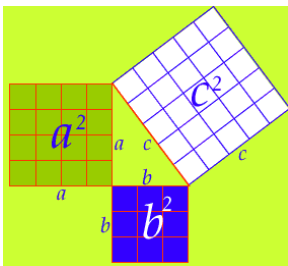
<p>characteristics of the picture.</p> <p>➤ A group shares to the class.</p>	<p>➤ Then ask some questions:</p> <ul style="list-style-type: none"> • how many types of triangles can you create? • What are the sides of triangle you have created? • Can you create a right triangle? What are their sides? <p>➔ another group reflects.</p> <p>➤ Give 3 different sides squares paper and worksheet #2.</p> <ul style="list-style-type: none"> • In groups, put the 3 squares (paper provided) together to have the same as the picture in the worksheet. • What is the shape of the combination? • What is the relationship of the 3 squares and the combination shape? Give you conclusion. • Watch a second video on the Pythagoras theorem (https://www.youtube.com/watch?v=YompsDIEdtc). How many ways to prove Pythagoras theorem? <p>➤ Give worksheet #3 for another prove</p> <p>➤ Conclude with the theorem: $a^2 + b^2 = c^2$</p>	<p>➤ Students do it in group</p> <p>➤ Each group have their answers on the board- 2 exercises each.</p>	
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Worksheet #1

Describe the types and characteristics of the pictures below



Worksheet #2



worksheet #3

let S is the area of the big square, S1 area of the small square, S2 area of the triangle.

$$S = (a + b)^2 = a^2 + 2ab + b^2$$

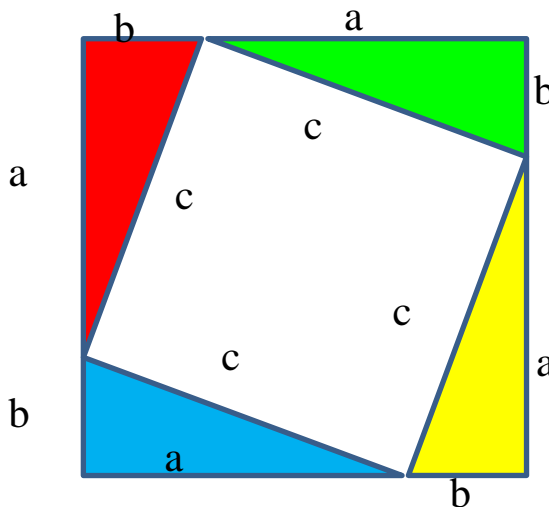
$$S_1 = c^2$$

$$S_2 = 4 \left(\frac{ab}{2} \right) = 2ab$$

$$\Rightarrow S_1 = S - S_2$$

$$\Leftrightarrow c^2 = a^2 + ab + b^2 - 2ab$$

$$So\ c^2 = a^2 + b^2$$



Worksheet #4

I. Is the triangle below right triangle?

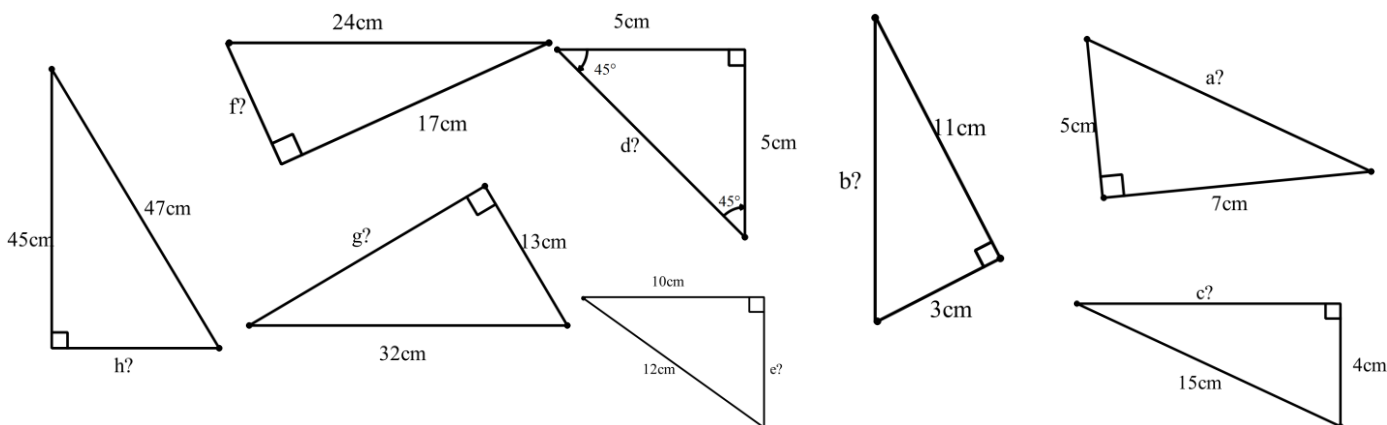
ក. $\triangle ABC$ មាន $AB=3\text{cm}$ $AC=4\text{cm}$ និង $BC=5\text{cm}$ ។

ខ. $\triangle PQR$ មាន $PQ=5\text{cm}$ $PR=6\text{cm}$ និង $QR=7\text{cm}$ ។

គ. $\triangle MNP$ មាន $MN=10$ $MP=8\text{cm}$ និង $NP=6\text{cm}$ ។

ឃ. $\triangle EFG$ មាន $EF=2\sqrt{3}\text{cm}$ $EG=5\text{cm}$ និង $\sqrt{13}\text{cm}$ ។

II. calculate the side of right triangle below



worksheet #5

the right triangle, as picture shown,
calculate AH, HC ។

