1. Ryan needs to identify a right triangle. When joined at the vertices, which set of squares below can be used to form a right triangle? (Note: Art not drawn to scale.)

   A. \[ A = 52u^2 \]
   \[ A = 16u^2 \]
   \[ A = 36u^2 \]

   B. \[ A = 81u^2 \]
   \[ A = 49u^2 \]
   \[ A = 25u^2 \]

   C. \[ A = 144u^2 \]
   \[ A = 36u^2 \]
   \[ A = 100u^2 \]

   D. \[ A = 35u^2 \]
   \[ A = 12u^2 \]
   \[ A = 25u^2 \]

2. Marcella drew a right triangle, \( \triangle BCD \), with side lengths of 9 inches, 40 inches, and 41 inches.

   A. Use the converse of the Pythagorean theorem to prove that \( \triangle BCD \) is a right triangle. Show your work.

   B. Marcella draws another triangle with each side length double that of \( \triangle BCD \). Is her new triangle also a right triangle? Show or explain your work.
Pythagorean Theorem wkst

I. Do the following lengths below make a right triangle? (show work) What is the name of the rule to prove if a triangle is a right triangle or not?
   1) (3, 6, 9)               4) (5, 12, 13)
   2) (1, 1, 2)               5) (15, 20, 30)
   3) (20, 46, 52)            6) (21, 28, 35)

II.
   7) Draw a right triangle and give the formula for the Pythagorean Theorem and label the sides of the triangle below using “leg”, “leg”, and “hypotenuse” as well as a, b, and c.

   8) A ladder is leaning against a building and rests on the wall at a distance of 24 feet above the ground. The ladder is 26 feet long. How many feet is the foot of the ladder from the base of the building? Round your answer to the nearest foot.

III. The following are different Pythagorean Triples for right triangles. Circle the length that would be considered the hypotenuse for each right triangle.
   9)   a) (3cm, 5cm, 4cm)                   c) (9in, 40in, 41in.)
       b) (10m, 6m, 8m)                     d) (48m, 50m, 14m)

10) In a right triangle, side a = 14m and side c = 23m. Find the length of side b. (Round to nearest tenth)
1. Ryan needs to identify a right triangle. When joined at the vertices, which set of squares below can be used to form a right triangle? (Note: Art not drawn to scale.)

A. \[ a^2 + b^2 = c^2 \]
\[ 16 + 36 = 52 \]
\[ 52 = 52 \]
which satisfies the converse of the Pythagorean Theorem.

B. \[ a^2 + b^2 = c^2 \]
\[ 81 + 1600 = 1681 \]
\[ 1681 = 1681 \]

2. Marcella drew a right triangle, \( \triangle BCD \), with side lengths of 9 inches, 40 inches, and 41 inches.

A. Use the converse of the Pythagorean theorem to prove that \( \triangle BCD \) is a right triangle. Show your work.

\[ a^2 + b^2 = c^2 \]
\[ 9^2 + 40^2 = 41^2 \]
\[ 81 + 1600 = 1681 \]
\[ 1681 = 1681 \]

B. Marcella draws another triangle with each side length double that of \( \triangle BCD \). Is her new triangle also a right triangle? Show or explain your work.

\[ 18^2 + 80^2 = 82^2 \]
\[ 324 + 6400 = 6724 \]
\[ 6724 = 6724 \]
I. Do the following lengths below make a right triangle? (show work) What is the name of the rule to prove if a triangle is a right triangle or not?

1) (3, 6, 9) \( \text{NO; } 45 + 81 \) 4) (5, 12, 13)
\[ a^2 + b^2 = c^2 \]

2) (1, 1, 2) \( \text{NO; } 1 + 1 \neq 4 \)
\[ a^2 + b^2 = c^2 \]

3) (20, 46, 52) \( \text{NO; } \sqrt{20^2 + 46^2} = \sqrt{400 + 2116} = \sqrt{2516} \neq 52 \)
\[ a^2 + b^2 = c^2 \]

5) (15, 20, 30) \( \text{NO; } 225 \neq 900 \)
\[ a^2 + b^2 = c^2 \]

6) (21, 28, 35) \( \text{YES; } 441 + 784 = 1225 \)
\[ a^2 + b^2 = c^2 \]

II. Draw a right triangle and give the formula for the Pythagorean Theorem and label the sides of the triangle below using “leg”, “leg”, and “hypotenuse” as well as \( a, b, \) and \( c \).

\[ \text{Diagram of a right triangle with labels: } a, b, \text{ and } c \]

\[ a^2 + b^2 = c^2 \]

8) A ladder is leaning against a building and rests on the wall at a distance of 24 feet above the ground. The ladder is 26 feet long. How many feet is the foot of the ladder from the base of the building? Round your answer to the nearest foot.

\[ a^2 + b^2 = c^2 \]
\[ 24^2 + b^2 = 26^2 \]
\[ 576 + b^2 = 676 \]
\[ b^2 = 100 \]
\[ b = 10 \text{ ft.} \]

III. The following are different Pythagorean Triples for right triangles. Circle the length that would be considered the hypotenuse for each right triangle.

9) a) (3cm, 5cm, 4cm)  
   b) (10m, 6m, 8m)  
   c) (9in, 40in, 41in.)  
   d) (48m, 50m, 14m)

Guess:

10) In a triangle side \( a = 14 \text{ m}, \ c = \) \( \sqrt{324 - 19 = 19} \) \( \text{m} \). \( b \) (Round to the nearest tenth.)

\[ a^2 + b^2 = c^2 \]
\[ 14^2 + b^2 = 19^2 \]
\[ b^2 + 196 = 361 \]
\[ b^2 = 165 \]
\[ b = 12.85 \text{ m} \]