Pythagoras's Theorem

- **Problem:** A ladder is leaning against a wall. The bottom of the ladder is 6 meters away from the wall, and the ladder reaches a height of 8 meters on the wall. How long is the ladder?

- **Problem:** A rectangular garden has a diagonal path running through it. The length of the garden is 15 meters, and the width is 9 meters. What is the length of the diagonal path?

- **Problem:** A boy flies a kite, and the string is fully stretched to a length of 50 meters. If the kite is directly above a point that is 30 meters away horizontally from where the boy is standing, how high is the kite above the ground?

- **Problem:** A car travels 12 km north and then 16 km east. How far is the car from its starting point?

- **Problem:** In a right-angled triangle, one leg is 7 cm long, and the hypotenuse is 25 cm. What is the length of the other leg?

- **Problem:** A TV is mounted on a wall, with the bottom of the TV 4 feet above the ground. The top of the TV is 5 feet higher than the bottom. How far is the top of the TV from the point on the floor directly below it?

- **Problem:** A tree casts a shadow 24 meters long. If the tree is 10 meters tall, what is the distance from the top of the tree to the tip of the shadow?

- **Problem:** Two streets meet at a right angle. One street is 18 meters long and the other is 24 meters long. What is the shortest distance between the two farthest ends of the streets?

- **Problem:** A triangular park has sides of 9 meters, 12 meters, and 15 meters. Verify whether the triangle is a right triangle using the Pythagorean theorem.

- **Problem:** A ladder is placed against a building such that it forms a right-angled triangle with the wall and the ground. If the distance between the foot of the ladder and the wall is 9 feet and the ladder is 15 feet long, find the height at which the ladder touches the wall.