Pythagorean Theorem Problem Solving Worksheet

Use the Pythagorean theorem to solve the following problems. Show all your work.

A ladder is leaning against a wall. The top of the ladder touches the wall at a height of 20 feet. If the ladder is 25 feet long, how far must the base of the ladder be from the wall to ensure it is securely placed?

A rectangular garden measures 60 feet in length and 25 feet in width. What is the diagonal distance across the garden?

A square playground has a perimeter of 160 meters. If a diagonal path is to be constructed from one corner to the opposite corner, how long will this path be?

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A ladder is leaning against a wall. The top of the ladder touches the wall at a height of 20 feet. If the ladder is 25 feet long, how far must the base of the ladder be from the wall to ensure it is securely placed?

- **$c^2 = 25^2 - 20^2 = 625 - 400 = 225$**
- **$b = \sqrt{225} = 15$ feet**
- **The base of the ladder must be 15 feet from the wall.**

A rectangular garden measures 60 feet in length and 25 feet in width. What is the diagonal distance across the garden?

- **$c^2 = 60^2 + 25^2 = 3600 + 625 = 4225$**
- **$c = \sqrt{4225} = 65$ feet**
- **The diagonal distance across the garden is 65 feet.**

A square playground has a perimeter of 160 meters. If a diagonal path is to be constructed from one corner to the opposite corner, how long will this path be?

- **Side = 160 meters / 4 = 40 meters**
- **$c^2 = 2 * 40^2 = 2 * 1600 = 3200$**
- **$c = \sqrt{3200} \approx 56.57$ meters**
- **The length of the diagonal path is approximately 56.57 meters.**