

The Weekly Rigor

No. 242

“A mathematician is a machine for turning coffee into theorems.”

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8 Problems in Solving Right Triangles (Part 2 of 4)

(Part 1)

PROBLEMS

1. A 9.0 m ladder rests against the side of a wall. The bottom of the ladder is 1.5 m from the base of the wall.

- (a) Determine the measure of the angle between the ladder and the ground, to the nearest degree.
- (b) How far up the wall does the ladder go? Answer to the nearest tenth of a meter.

2. A ladder, which is leaning against the side of a building, forms an angle of 50° with the ground. The foot of the ladder is 12 ft from the base of the building.

- (a) How far up the side of the building does the ladder reach? Answer to the nearest foot.
- (b) How long is the ladder? Answer to the nearest foot.

3. A ladder 18 ft long leans against a building. The ladder forms an angle of 60° with the ground.

- (a) How high up the side of the building does the ladder reach? Answer to the nearest hundredth of a foot.
- (b) Find the horizontal distance from the foot of the ladder to the base of the building. Answer to the nearest hundredth of a foot.

4. Jane has a 32 foot ladder. If she leans it against a building so that the base of the ladder forms an angle of 70° , how high up the building will the top of the ladder be? Answer to the nearest hundredth of a foot.

5. Your cat is trapped on a tree branch 6.5 meters above the ground. Your ladder is only 6.7 meters long. If you place the ladder's tip on the branch, what angle will the ladder make with the ground? Answer to the nearest hundredth of a degree.

6. A person flying a kite has released 176 m of string. The string makes an angle of 27° with the ground. How high is the kite? How far away is the kite horizontally? Answer to the nearest meter.

7. Sue is sitting in a field flying a kite high in the air. She has let out 500 feet of string. If the angle between the ground and her string is 58° , how high above the ground is the kite? Answer to the nearest foot.

8. Sam's kite is 400 feet in altitude. The string makes an angle of 30° with the ground. How much string has he let out? Answer to the nearest foot.

ANSWERS

1. 80° ; 8.9 m	2. 14 ft; 19 ft
3. 15.59 ft; 9.00 ft	4. 30.07 ft
5. 75.97°	6. 80 m high; 157 m away
7. 424 ft	8. 800 ft

“Only he who never plays, never loses.”