

Warm-Up Notes

MAT 100: ELEMENTARY ALGEBRA

Fall 2026

SECTION 3.4 SOLVE GEOMETRY APPLICATIONS: TRIANGLES, RECTANGLES, AND THE PYTHAGOREAN T

Install — 10 minute lesson

Objectives of this Section

- Solve applications using properties of triangles
- Use the Pythagorean Theorem
- Solve applications using rectangle properties

Skills

Introduced in this section:

No new skill introduced this section. **Also practiced:** WRD.NM (Naming the model), EQN.V2 (Solving for a variable II (other variables)), WRD.EQ (Decoding an explicit equation), EQN.MS (Multi-step Equations).

Lesson

A rectangle's perimeter formula only has two unknowns — length and width — but almost every real problem gives you just one total and a sentence describing how the two sides compare. Your job is to turn that sentence into an expression for one side in terms of the other, then let $P = 2L + 2W$ do the rest.

I do

Watch. A rectangular parking lot has perimeter 250 feet. The length is five feet more than twice the width. Find the length and width of the parking lot.

We do

Together. The width of the rectangle is 0.7 meters less than the length. The perimeter of a rectangle is 52.6 meters. Find the dimensions of the rectangle.

You do

Your turn. A rectangular room is 15 feet wide by 14 feet long. What is its perimeter?

Your turn. The perimeter of a rectangular field is 560 yards. The length is 40 yards more than the width. Find the length and width of the field.

Practice

1. Use the Pythagorean Theorem to find the length of the leg. Round to the nearest tenth, if necessary. A right triangle has hypotenuse 20 and one leg 16. Find the other leg.

2. Solve using triangle properties. The perimeter of a triangle is 39 feet. One side of the triangle is one foot longer than the second side. The third side is two feet longer than the second side. Find the length of each side.

3. Use the Pythagorean Theorem to find the length of the leg. Round to the nearest tenth, if necessary. A right triangle has hypotenuse 17 and one leg 8. Find the other leg.

4. The length of the rectangle is 1.1 meters less than the width. The perimeter of a rectangle is 49.4 meters. Find the dimensions of the rectangle.