

Pythagorean problems

1. Frank Rd and James Rd. make a perpendicular intersection. The state wants to build a new road. The new road will intersect 3 miles north of the intersection on Frank Rd. and 4 miles west of the intersection on James Rd. How long will the new road be that intersects Frank and James Rd? The new road would cost \$10 per foot to pave. What would be the cost of the new road?
2. The mobile phone company is anchoring wires to the top of their 1200 ft high communication towers. The cable for the support wire comes in a roll that is 3900 ft long. The company requires you to use the entire roll. The cable can only be cut twice to ensure its strength. All cables need to be equal. How long will each cable be and how far from the base of the tower do they need to be anchored?
3. In the city planning meeting, a scale drawing of a park was drawn. The park fills inside a square city block. The scale was 3 inches equal $\frac{3}{10}$ miles. One side of the city blocks was 4 inches in the drawing. One member of the city planners said, " Their needs to be a short cut through the park from the corners." How long in miles will the short cut be? Round answers to the nearest tenth of a mile.
4. You are planning to put a new digital flat TV on a wall that is 12 ft long and 9 ft high. The digital TV has a diagonal of 72 inches. The length of the TV is twice the width of the TV. How much of the wall will still need to be decorated around the TV?
5. A carpenter wants to build a handicap ramp over a set of steps that is 12 feet long and 5 feet high. How long will the ramp be?



Answers:

1. 5 miles long cost \$264,000
2. 1300 ft cables, 500 ft from the tower
3. about $\frac{6}{10}$ miles
4. 32.2 sq in width rounded to 3 ft
64.3 sq in length rounded to 5ft
total area for TV is 15 sq ft
remaining area around TV is 93 sq ft.