

Pythagorean Theorem: PRACTICE QUESTIONS

1. A quarterback at point A throws the football to a receiver who catches it at point B. How long was the pass?

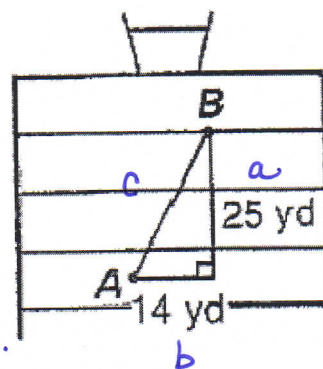
let c rep. length of pass.

$$c^2 = a^2 + b^2$$

$$c^2 = (25)^2 + (14)^2$$

$$c^2 = 821$$

$$\boxed{c = 28.7} \therefore \text{length of pass is } 28.7 \text{ yd.}$$



2. The bottom of a 6 foot ladder is 2 feet away from the base of a wall. How high does the ladder go up the wall?

let h rep. height of ladder up the wall.

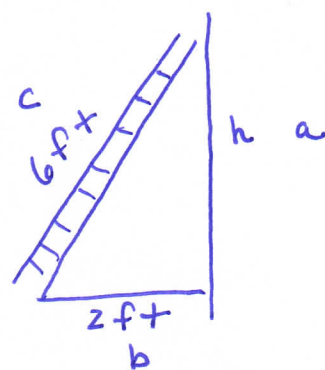
$$(6)^2 = h^2 + (2)^2$$

$$36 = h^2 + 4$$

$$36 - 4 = h^2$$

$$32 = h^2$$

$$\boxed{h = 5.7 \text{ ft}} \therefore \text{height is } 5.7 \text{ ft.}$$



3. A park is in the shape of a rectangle 8 miles long and 6 miles wide. How much shorter is your walk if you walk diagonally across the park than along two sides of it?

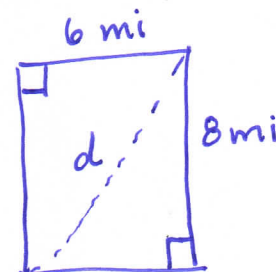
let d rep. distance across diagonally.

$$d^2 = (6)^2 + (8)^2$$

$$d^2 = 36 + 64$$

$$\boxed{d = 10}$$

$$\therefore \text{distance is } 10 \text{ mi.}$$



4. Anna has let out 50 meters of kite string when she observes that her kite is directly above Emily. If the kite is 35 meters high in the air, how far is Emily from Anna?

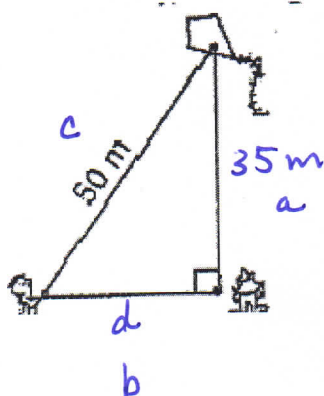
let d rep. distance b/w Emily & Anna.

$$(50)^2 = (35)^2 + d^2$$

$$2500 - 1225 = d^2$$

$$\boxed{35.7 = d}$$

$$\therefore \text{distance is } 35.7 \text{ m.}$$



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5. A builder needs to add diagonal braces to a wall. The wall is 16 feet wide by 12 feet high. What is the length of each brace?

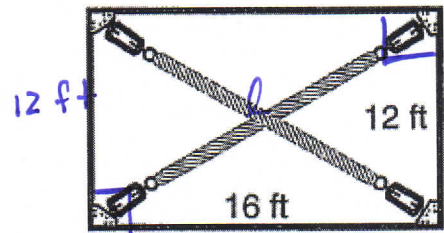
Let l rep. length. of brace.

$$l^2 = (12)^2 + (16)^2$$

$$l^2 = 400$$

$$l = 20$$

$\therefore$ length is 20 ft.



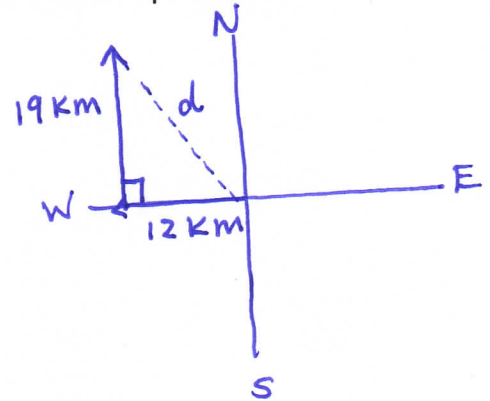
6. A ship leaves port and sails 12 km west then 19 km north. How far is the ship from the port?

Let d rep distance from port.

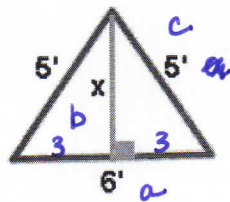
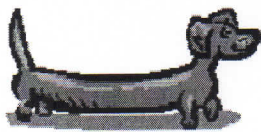
$$d^2 = (19)^2 + (12)^2$$

$$d = 22.5$$

$\therefore$ distance is 22.5 km from port.



7. Oscar's dog house is shaped like a tent. The slanted sides are both 5 feet long and the bottom of the house is 6 feet across. What is the height of his dog house, in feet, at its tallest point?



Let x rep. height of house.

$$5^2 = (3^2) + x^2$$

$$25 = 9 + x^2$$

$$16 = x^2$$

$$4 = x$$

$\therefore$ height of house is 4 ft.