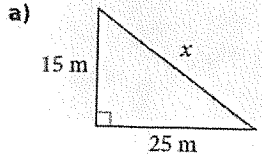


DAY 1 - Pythagorean Theorem

1. Find the length of the hypotenuse to the nearest tenth of a unit.

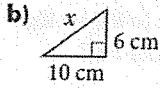


$$x^2 = 15^2 + 25^2$$

$$x^2 = 225 + 625$$

$$x^2 = 850$$

$$x = 29.2 \text{ m}$$



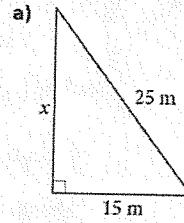
$$10^2 + 6^2 = x^2$$

$$100 + 36 = x^2$$

$$136 = x^2$$

$$11.7 \text{ cm} = x$$

2. Find the length of the indicated side to the nearest tenth of a metre.

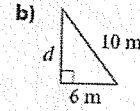


$$x^2 + 15^2 = 25^2$$

$$x^2 + 225 = 625$$

$$x^2 = 400$$

$$x = 20 \text{ m}$$

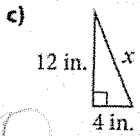


$$d^2 + 6^2 = 10^2$$

$$d^2 + 36 = 100$$

$$d^2 = 64$$

$$d = 8 \text{ m}$$

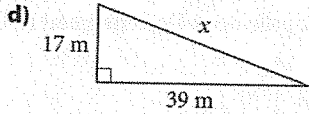


$$12^2 + 4^2 = x^2$$

$$144 + 16 = x^2$$

$$160 = x^2$$

$$12.6 \text{ in} = x$$

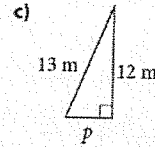


$$17^2 + 39^2 = x^2$$

$$289 + 1521 = x^2$$

$$1810 = x^2$$

$$42.5 \text{ m} = x$$

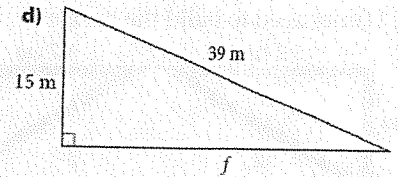


$$p^2 + 12^2 = 13^2$$

$$p^2 + 144 = 169$$

$$p^2 = 25$$

$$p = 5$$



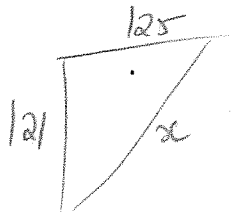
$$f^2 + 15^2 = 39^2$$

$$f^2 + 225 = 1521$$

$$f^2 = 1296$$

$$f = 36 \text{ m}$$

3. Jie-ling walks home from school by walking around two sides of a rectangular park. The length of the park is 125 m and the width is 121 m. If Jie-ling were to walk diagonally across the park, how far would she walk?



$$x^2 = 125^2 + 121^2$$

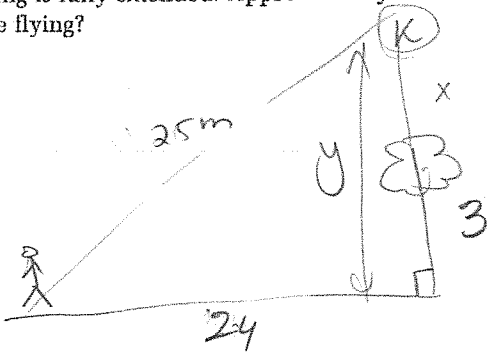
$$x^2 = 15625 + 14641$$

$$x^2 = 30266$$

$$x = 174 \text{ m}$$

∴ she walked 174 m

4. Brook is flying a kite while standing 24 m from the base of a tree at the park. Her kite is directly above the 10 m tree and the 25 m string is fully extended. Approximately how far above the tree is her kite flying?



$25^2 = 24^2 + (x+3)^2$

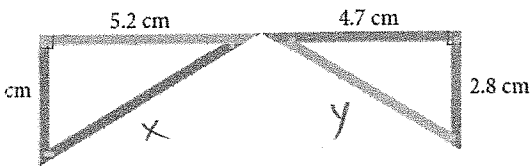
$625 = 576 + x^2 + 3x + 3x + 9$

$0 = x^2 + 6x - 40$

∴ kite is 4 m above tree.

6. $0 = (x+10)(x-4)$ ∴ $x = -10$ or $x = 4$

Daniel is building a wooden bridge for his daughter's model railroad. He sketches a plan for the bridge. What length of wood does Daniel need to build the bridge?



$x^2 = 3.1^2 + 5.2^2$

$x^2 = 9.61 + 27.04$

$x^2 = 36.65$

$x = 6.1 \text{ cm}$

$y^2 = 4.7^2 + 2.8^2$

$y^2 = 22.09 + 7.84$

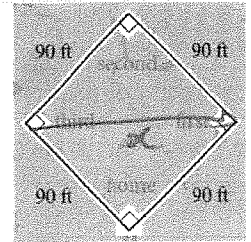
$y^2 = 29.93$

$y = 5.5 \text{ cm}$

∴ $3.1 + 5.2 + 4.7 + 2.8 + 6.1 + 5.5$

$16 = 27.4 \text{ cm of wood is needed}$

5. Natalya is playing baseball. She catches a ground ball at third base. The player on the opposing team is running toward first base. How far does Natalya have to throw the ball to throw the runner out?



OR $y^2 + 24^2 = 25^2$

$y^2 + 576 = 625$

$y^2 = 49$

$y = 7$

$x = 4$

$x^2 = 90^2 + 90^2$

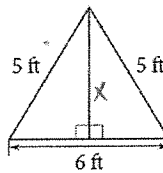
$x^2 = 8100 + 8100$

$x^2 = 16200$

$x = 127.3 \text{ ft}$

∴ Natalya must throw ball for 127.3 ft.

7. Darlene goes camping with her children. As they set up the tent, they discover that the vertical support poles are missing. What length of pole does Darlene need to buy?



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

$x^2 + 9 = 25$

$x^2 = 16$

$x = 4$

∴ pole needs to be 4 ft tall