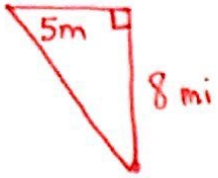
Day 3 – Pythagorean Theorem Review – Practice

1. Two joggers run 8 miles north and then 5 miles west. What is the shortest distance, to the nearest tenth of a mile, they must travel to return to their starting point?



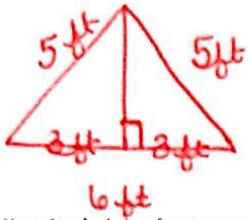
$5^2 + 8^2 = c^2$

$89 = c^2$

$9.4 = c$

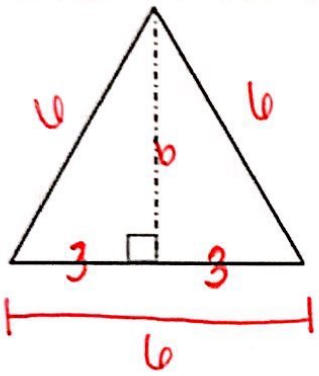
9.4 miles is the shortest distance.

2. Oscar's doghouse 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 doghouse, in feet, at its tallest point?



The height is 4 ft (Pythagorean Triple 3-4-5)

3. Find the height of an equilateral triangle using the Pythagorean theorem if each side measures 6 cm. (Note: the height bisects the bottom side of the triangle.)



a. What is the height of the triangle?

$3^2 + b^2 = 6^2$

$9 + b^2 = 36$

$b^2 = 27$

$b = 5.2$ cm

b. What is the perimeter of the triangle?

$P = 6 + 6 + 6$

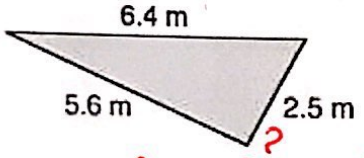
$P = 18$ cm

c. What is the area of the triangle?

$A = \frac{1}{2}(6)(5.2)$

$A = 15.6\ cm^2$

4. Determine if the following triangles are right triangles:

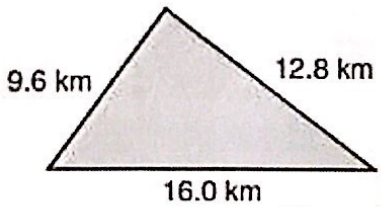


Not a right triangle

$5.6^2 + 2.5^2 = 6.4^2$

$31.36 + 6.25 = 40.96$

$37.61 \neq 40.96$



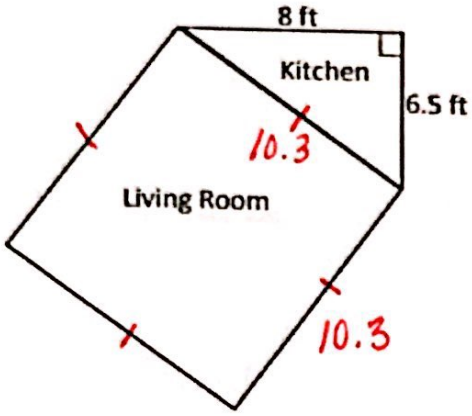
Is a Right Triangle

$9.6^2 + 12.8^2 = 16^2$

$92.16 + 163.84 = 256$

$256 = 256$

5. You are at a hardware store getting tiles for your square living room, but you can't remember how much tile you need to get. You find a drawing of your kitchen and living room in your pocket that has the dimensions of your kitchen, but not of your living room. Find the area of your living room so you know how many tiles to get with the given information.



a.) What is the hypotenuse of the triangle?

$8^2 + 6.5^2 = c^2$

$106.25 = c^2$

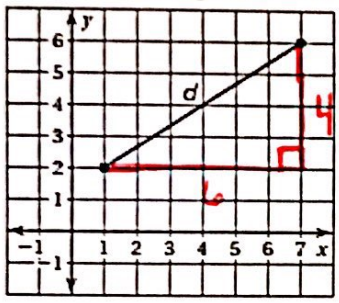
$10.3 \text{ ft} = c$

b.) What is the area of the living room?

$A = (10.3)^2$

$A = 106.1 \text{ ft}^2$

6. Find the length of line d.



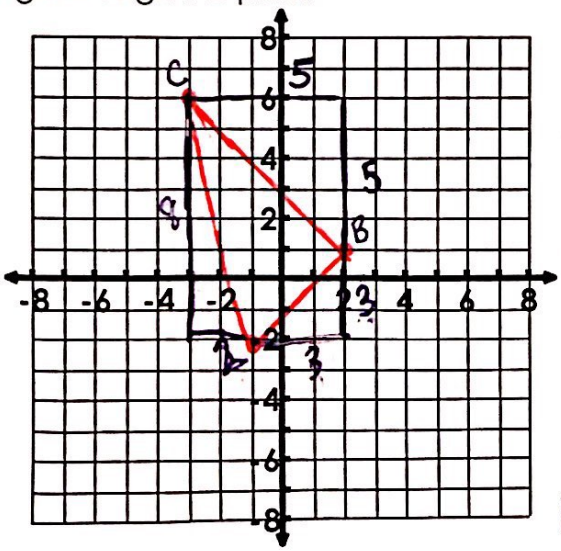
$4^2 + 6^2 = c^2$

$52 = c^2$

$7.2 = c$

7. Plot the points (−1, −2), (2, 1), and (−3, 6) in a coordinate plane. ~~Are the points the vertices of a right triangle? Explain~~. Find the perimeter of the triangle

A B C



$\overline{AB}$: $3^2 + 3^2 = (AB)^2$

$18 = (AB)^2$

$4.2 = AB$

$\overline{BC}$: $5^2 + 5^2 = (CB)^2$

$50 = (CB)^2$

$7.1 = CB$

$\overline{AC}$: $2^2 + 8^2 = (AC)^2$

$68 = (AC)^2$

$8.2 = AC$

Perimeter $= 4.2 + 7.1 + 8.2$

Perimeter $= 19.5$.