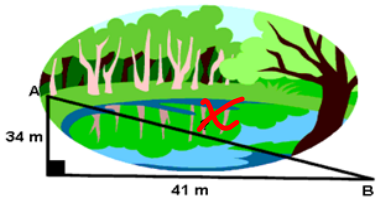
MBF 3CI Pythagorean Theorem Worksheet

Be sure to show your work in your notebook. You may want to draw your own pictures, or add to the ones already there. **AFTER EACH QUESTION CHECK YOUR FINAL ANSWER WITH MY ANSWERS AT THE BOTTOM OF THIS SHEET.**

Reminder: When correcting the worksheet,
Focus on rounding at the END ONLY!

1. To get from point A to point B you must avoid walking through a pond.
   To avoid the pond, you must walk 34 meters south and 41 meters east.
   To the *nearest meter*, **how many meters would be saved** if it were possible to walk through the pond?

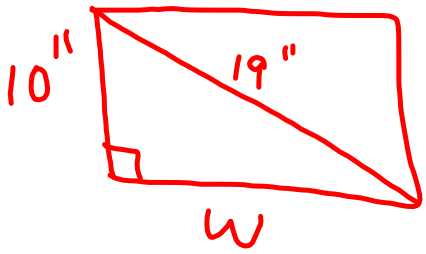


Long way
$= 34 + 41$
$= 75$ m

Saved $= 75 - 53$
$= 22$ m

$x^2 = 34^2 + 41^2$
$= 1156 + 1681$
$= 2837$
$x = \sqrt{2837}$
$\doteq 53.2$
$\doteq 53$ m

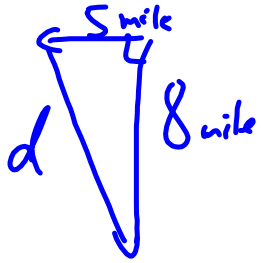
2. On a computer store website, a computer monitor is listed as being 19 inches.
   This distance is the diagonal distance across the screen. If the screen measures 10 inches in height, what is the actual width of the screen, to the *nearest inch*?



$10^2 + w^2 = 19^2$
$w^2 = 19^2 - 10^2$
$= 361 - 100$
$= 261$
$w = \sqrt{261}$
$\doteq 16.1$
$\doteq 16$"

16.15
$\doteq 16.2$

3. 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?



$5^2 + 8^2 = d^2$

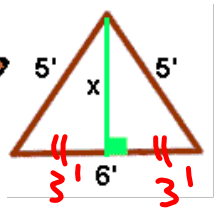
$25 + 64 = d^2$

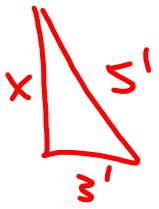
$89 = d^2$

$d = \sqrt{89}$

$\doteq 9.43$ $\rightarrow \therefore d \doteq 9.4$ miles

4. Oscar's dog house is shaped like a tent. An isosceles triangle is formed in the cross-section (see the diagram below). What is the height of his dog house, in feet, at its tallest point?





$x^2 = 5^2 - 3^2$

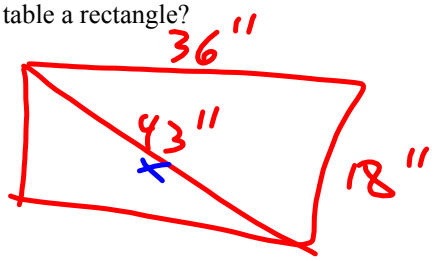
$= 25 - 9$

$= 16$

$x = \sqrt{16}$

$= 4$

5. Seth made a small table for his workroom. The top of the table is 36" by 18" with a diagonal of 43". Is the top of the table a rectangle?



$x^2 = 36^2 + 18^2$

$= 1296 + 324$

$= 1620$

$x = \sqrt{1620}$

≈ 40.24

Not a rectangle because PT did not hold.

FINAL ANSWERS

1. About 22 metres
2. About 16 inches
3. About 9.4 miles
4. 4 feet tall
5. No, since $c^2 \neq a^2 + b^2$ where c is the diagonal.

Time to "Show What You Know"

Close all books for the quiz!