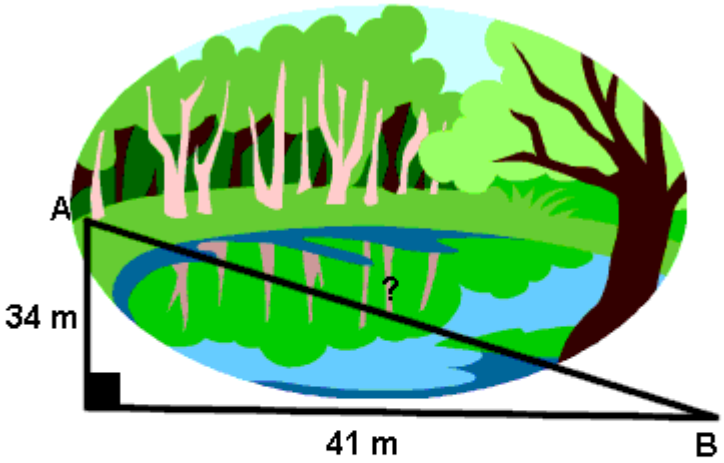
Honors Math 2 Name_____

Pythagorean theorem, rationalizing denominators Period_____Date_____

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?

2.

A baseball diamond is a square with sides of 90 feet. What is the shortest distance, to the *nearest tenth* of a foot, between first base and third base?

3.

A suitcase measures 24 inches long and 18 inches high. What is the diagonal length of the suitcase to the *nearest tenth* of a foot?

4.

In a computer catalog, 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*?

5.

The older floppy diskettes measured 5 and 1/4 inches on each side. What was the diagonal length of the diskette to the *nearest tenth* of an inch?

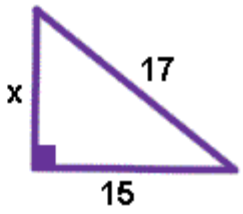
6.

Ms. Green tells you that a right triangle has a hypotenuse of 13 and a leg of 5. She asks you to find the other leg of the triangle without using paper and pencil. What is your answer?

7.

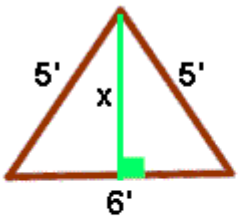
Two joggers run 8 miles north and then 5 miles west. What is the shortest distance, to the *nearest tenth* of a mile, they must travel to return to their starting point?

8.



Find x

9.

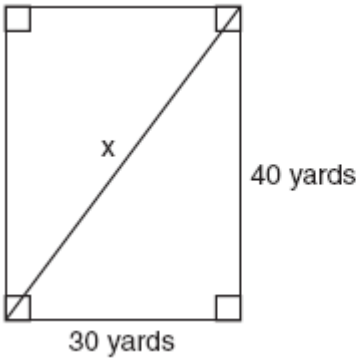


Oscar's dog house is shaped like a tent. The slanted sides are both 5 feet long and the bottom of the house is 6 feet across. What is the height of his dog house, in feet, at its tallest point?

10.

Seth made a small rectangular table for his workroom. The sides of the table are 36" and 18". If the diagonal of the table measures 43", is the table square? A table which is "square" has right angles at the corners.

11.



Tanya runs diagonally across a rectangular field that has a length of 40 yards and a width of 30 yards, as shown in the diagram.

What is the length of the diagonal, in yards, that Tanya runs?

Example: $\frac{1}{\sqrt{2}}$ has an Irrational Denominator. Let's fix it.

Multiply top and bottom by the square root of 2, because: $\sqrt{2} \times \sqrt{2} = 2$:

$$\frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

Now the denominator has a rational number (=2). Done!

Rationalize each denominator. When possible, simplify by reducing the resulting fraction.

1. $\frac{1}{\sqrt{2}}$
2. $\frac{2}{\sqrt{3}}$
3. $\frac{1}{\sqrt{7}}$
4. $\frac{6}{\sqrt{2}}$
5. $\frac{15}{\sqrt{5}}$
6. $\frac{42}{\sqrt{7}}$
7. $\frac{1}{\sqrt{81}}$
8. $\frac{2}{\sqrt{11}}$
9. $\frac{4}{\sqrt{2}}$
10. $\frac{1}{\sqrt{3}}$
11. $\frac{1}{\sqrt{225}}$
12. $\frac{1}{3\sqrt{16}}$
13. $\frac{8}{3\sqrt{2}}$
14. $\frac{2}{\sqrt{3}}$
15. $\frac{1}{\sqrt{8}}$
16. $\frac{18}{\sqrt{27}}$
17. $\frac{6}{2\sqrt{7}}$
18. $\frac{6}{\sqrt{12}}$