Name _____ Date _____

Working with Right Triangles - Guided Lesson Explanation

Explanation # 1

If a triangle contains exactly one 90° angle, the other two angles must total exactly 90 degrees. The famous Pythagoras Theorem defines the relationship between the three sides of a right triangle:

$\text{Hypotenuse}^2 = \text{Base}^2 + \text{Opposite}^2$

$\text{Hypotenuse}^2 = \text{Base}^2 + \text{Opposite}^2$

$(9)^2 = \text{Base}^2 + (12)^2$

$\text{Base}^2 = (12)^2 - (9)^2$

$\text{Base}^2 = 144 - 81$

$\text{Base}^2 = \sqrt{63}$

$\text{Base}^2 = 7.93$

Explanation # 2

Tangent Ratio: for any acute angle θ of a right triangle.

$\text{Tan } ø = \frac{Opposite}{Adjacent}$

$\text{Tan } ø = \frac{Opposite}{Adjacent}$

$\text{Tan V} = \frac{50}{25}$

Tan V = 2

Finding the inverse of tan 2, we got 63.43°.

Answer is: 63.43 °

Name _____ Date _____

Explanation#3

Using the startegy we used iun #1, we go back to good old Pythagorean Theorem:

$\text{Hypotenuse}^2 = \text{Base}^2 + \text{Opposite}^2$

Step 3) $\text{Hypotenuse}^2 = \text{Base}^2 + \text{Opposite}^2$

$\text{Hypotenuse}^2 = (6.5)^2 + (6.5)^2$

$\text{Hypotenuse}^2 = 42.25 + 42.25$

$\text{Hypotenuse}^2 = 84.5$

$\text{Hypotenuse} = \sqrt{84.5}$

Hypotenuse = 9.19 meters