Name _____ Date _____

Trigonometric Ratios and the Pythagorean Theorem - Guided Lesson Explanation

Explanation#1

height = 25, angle = 50°, distance of man to the pole =

Sin ø = $\frac{opposite}{hypotenuse}$

sin ø = $\frac{opposite}{hypotenuse}$

sin ø = $\frac{ON}{NM}$

sin 20° = $\frac{20}{x}$

sin 20° x = 20 (value of sin 20° = .3420)

x = $\frac{20}{.3420}$

Answer is: 50.48 meters

Explanation#2

distance = 40, angle = 50°, height of the tree =

tan ø = $\frac{Opposite}{adjacent}$

Step 3) tan ø = $\frac{Opposite}{adjacent}$

tan ø = $\frac{BC}{AB}$

tan 50° = $\frac{x}{40}$

Name _____ Date _____

40 * tan 50° = x

x =40 * 1.192

Answer is: x = 47.67 meters

Explanation#3

slope = 15, angle = 32°, distance =

cos ø = $\frac{adjacent}{hypotenuse}$

Step 3) cos ø = $\frac{adjacent}{hypotenuse}$

cos 32° = $\frac{YZ}{YX}$

cos 32° = $\frac{x}{15}$

0.848 x 15 = x (the value of cos 32° is .848)

x = 12.72

Answer is: 12.72 inches