What is Trigonometry?

Worksheet

Trigonometry relates a right triangle's angles to its side ratios: sin = opposite/hypotenuse, cos = adjacent/hypotenuse, tan = opposite/adjacent - remembered as SOH-CAH-TOA.

sin(@theta) = @frac{opp}{hyp}, cos(@theta) = @frac{adj}{hyp}

Questions

1. In a right triangle, sin equals:

A) adjacent/hypotenuse
B) opposite/adjacent
C) opposite/hypotenuse
D) hypotenuse/opposite

2. Hypotenuse = 20, = 30. Opposite side?

A) 10
B) 17.3
C) 20
D) 6

3. tan is defined as:

A) opp/hyp
B) adj/hyp
C) opp/adj
D) hyp/adj

4. What is cos(60) approximately?

A) 1.0
B) 0.87
C) 0.5
D) 0

5. A right triangle has hypotenuse 10 and angle = 30. Find the opposite side.

6. A ramp makes a 20 angle with the ground and is 12 m long (hypotenuse). How high does it rise?

7. A right triangle has adjacent side 8 and angle = 45. Find the hypotenuse.

8. Define: What does SOH-CAH-TOA stand for?

9. Define: What is sin(90)?

10. Define: What is cos(0)?

Answer Key

1. C) opposite/hypotenuse - SOH: sine = opposite over hypotenuse.
2. A) 10 - opp = 20 sin(30) = 20 0.5 = 10.
3. C) opp/adj - TOA: tangent = opposite over adjacent.
4. C) 0.5 - cos(60) = 0.5.
5. sin = opp/hyp opp = hyp sin(30) = 10 0.5 = 5
6. opp = hyp sin(20) opp = 12 0.342 4.10 m
7. cos = adj/hyp hyp = adj/cos(45) = 8/0.707 11.31
8. Sin=Opp/Hyp, Cos=Adj/Hyp, Tan=Opp/Adj.
9. 1 - at 90, the opposite side equals the hypotenuse.
10. 1 - at 0, the adjacent side equals the hypotenuse.