

# Download File PDF Right Triangle Trigonometry Solutions

#Jenny



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Cool! I'am really happy

#Markus Jensen



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so many fake sites. this is the first one which worked! Many thanks

Right Triangles: Finding sides and angles (without a calculator)

SOLUTIONS

1)   
 $X = 3$  because 3-4-5 special triangle   
 using pythagorean theorem:  $4^2 + y^2 = 5^2$    
 $16 + y^2 = 25$    
 $y = \sqrt{9} = 3$    
 $Z = 30$  because 30-72-78 is a 6 x (5-12-13) triangle. OR, using pythagorean theorem:  $72^2 + z^2 = 78^2$    
 $5184 + z^2 = 6084$    
 $z^2 = 900$    
 $z = 30$

2)   
 45-45-90 triangle therefore,  $X = 14\sqrt{2}$    
 OR,  $X = \sqrt{196 + 196} = \sqrt{392} = 14\sqrt{2}$    
 30-60-90 triangle  $Z = 5, x = 10$    
 $Y = 5\sqrt{3}$    
 To check answer, try  $5^2 + 5\sqrt{3}^2 = 10^2$    
 pythagorean theorem  $100 = 100$    
 Since the hypotenuse is 2x one of the legs, we can conclude it is a 30-60-90 triangle. Therefore, angle b is 60 degrees. And, side W is  $6/\sqrt{3}$

3)   
 Find the altitude of equilateral  $\triangle abc$ .   
 An equilateral triangle has angles of 60-60-60. This is helpful, since the altitude produces two 30-60-90 triangles.   
 $Area\ of\ Trapezoid = \frac{1}{2}(b_1 + b_2)h$    
 $Area = \frac{1}{2}(10 + 4) \cdot 6 = 42$    
 To find height, we consider the 30-60-90 right triangle.   
 $\rightarrow height = 4\sqrt{3}$    
 $Area\ of\ Trapezoid = \frac{1}{2}(10 + 4)\sqrt{3} = 28\sqrt{3}$    
 Given the diagonal is 20. Find the area of the above rectangle.   
 We know the diagonal (hypotenuse) and the angle formed by the diagonal.   
 $Area\ of\ rectangle = length \times width = 15 \times 10\sqrt{3} = 150\sqrt{3}$

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