Solving Right Triangles

Let's consider a right triangle, one of whose acute angles is Θ.

The three sides of the triangle are the hypotenuse, the side opposite Θ, and the side adjacent to Θ.

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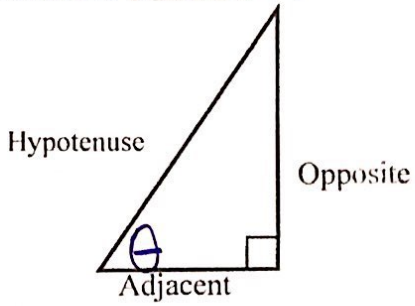
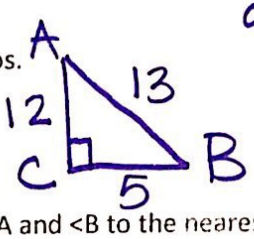


sin Θ = $\frac{opp}{hyp}$ ***cos*** Θ = $\frac{adj}{hyp}$ ***tan*** Θ = $\frac{opp}{adj}$

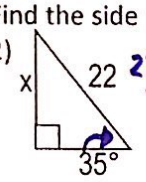
1) In ΔABC, C is a right angle and sin A = $\frac{5}{13}$ $\frac{opp}{hyp}$. Find the values of the remaining trig ratios.

cos A = tan A =



Find the side length to nearest tenth:

2)

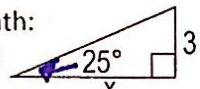


$\frac{22}{22}\sin 35 = \frac{x}{22} \cdot 22$

$22\sin 35 = x$

$12.6 = x$

3)



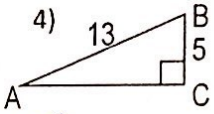
$x \cdot \tan 25 = \frac{3}{x} \cdot x$

$\frac{x\tan 25}{\tan 25} = \frac{3}{\tan 25}$

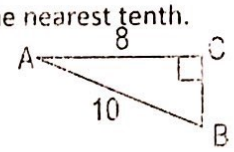
$x = 6.4$

Find the measure of <A and <B to the nearest tenth.

4)



5)



In ΔABC, C is a right angle. Find the remaining sides/angles. Round to tenth

6) c = 17, a = 12

7) c = 60, ∠A = 62°

8) b = 12, ∠B = 28°

10) When the angle of elevation of the sun is 55°, the world's tallest flagpole casts a shadow of 210 feet. Find the height of the flagpole to the nearest foot.

11) Suppose you are standing on one bank of a river. A tree on the other side is known to be 150 feet tall. A line from the top of the tree to the ground at your feet makes an angle of 11° with the ground. How far from you is the base of the tree?