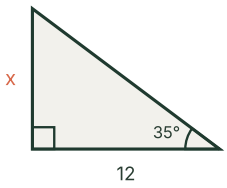
Right Triangle *Trigonometry*

HSG.SRT.C.8

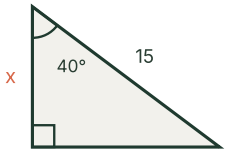
Name _____ Date _____

Use the ratios SOH-CAH-TOA: $\sin\theta = \frac{\text{opp}}{\text{hyp}}$, $\cos\theta = \frac{\text{adj}}{\text{hyp}}$, $\tan\theta = \frac{\text{opp}}{\text{adj}}$. Always write the trig equation first, then solve. Round side lengths and angle measures to the nearest tenth.

1. Write the equation and find x.

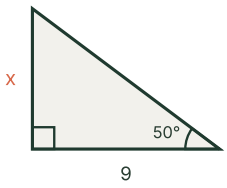


2. Write the equation and find x.

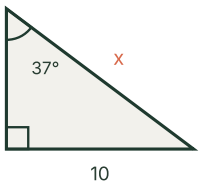


3. A right triangle has an angle of 28° and a hypotenuse of 20. Find the length x of the side opposite the 28° angle.

4. Write the equation and find x.

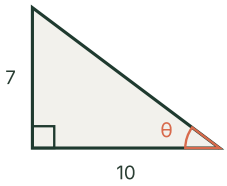


5. In a right triangle, the side opposite a 37° angle is 10. Find the length x of the hypotenuse.



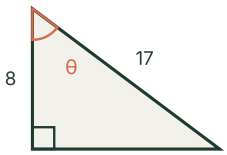
6. A right triangle has an angle of $25°$ with an adjacent leg of 18. Find the length x of the hypotenuse.

7. Find the measure of angle θ.



8. A right triangle has a side of length 9 opposite an angle θ, and a hypotenuse of 15. Find the measure of θ.

9. Find the measure of angle θ.



10. You know one acute angle of a right triangle and the length of the hypotenuse, and you want the side **adjacent** to that angle. Which equation should you use?

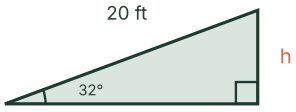
A) $\sin\theta = \dfrac{\text{adj}}{\text{hyp}}$

B) $\cos\theta = \dfrac{\text{adj}}{\text{hyp}}$

C) $\tan\theta = \dfrac{\text{adj}}{\text{hyp}}$

D) $\cos\theta = \dfrac{\text{hyp}}{\text{adj}}$

11. A skateboard ramp rises at an angle of $32°$. The ramp surface (the hypotenuse) is 20 feet long. How high is the top of the ramp?



12. A 18-foot ladder leans against a wall with its base 5 feet from the wall. What angle does the ladder make with the ground?

13. From a point on the ground 25 feet from the base of a tree, the angle of elevation to the treetop is 40°. How tall is the tree?

14. A kite is flying on 50 feet of string held taut at 55° above the horizontal. Assuming the string is straight, how high is the kite above the hand holding it?