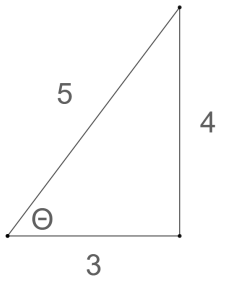
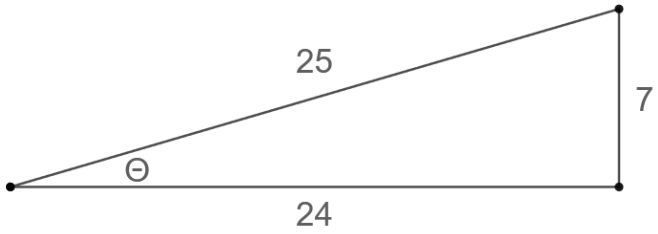
1. Why is $\cos 30° = \cos 330°$?
2. Why is $\tan 90°$ undefined?
3. Explain the importance of the unit circle.
4. Give two definitions for the tangent function.
5. You stand 48 feet from a pine tree that grows straight up. From your position you must look up at an angle of 60° to look at the top of the tree. Find the height of the tree.
6. You are standing in a lighthouse on the shore. You spot a boat that is 12 miles away. At an angle of 90° from your line of sight to the boat, you see an island that is also 12 miles away. How far apart are the island and the boat?
7. A tree is growing at an angle of 75° with the horizontal.If the tree measures 12 meters long, give an equation for the height of the tree at its tip.
8. Stair riser heights should be between 4 inches and 7 inches and the depths should be at a minimum 11 inches. If you built two sets of stairs, one with minimum riser height and one with maximum riser height, what would be the maximum and minimum slopes in degrees? Give equations not actual values.
9. A student turned in the following work. Is this correct? Why or why not?



$$\sin\theta = \frac{3}{5}$$
$$\cos\theta = \frac{4}{5}$$
$$\tan\theta = \frac{4}{3}$$

10. Find the sine, cosine, and tangent of the angle θ.



11. Find each of the following values.

    A. $\sin 30°$ B. $\cos 60°$ C. $\tan 45°$ D. $\sin 60°$ E. $\cos 30°$