Using Right Triangle Trig to find Trig values

8. Given $\sin \theta = \frac{3}{5}$ find the other five trig values.

$$\sin \theta = \frac{3}{5} \quad \csc \theta = \frac{5}{3}$$
$$\cos \theta = \frac{4}{5} \quad \sec \theta = \frac{5}{4}$$
$$\tan \theta = \frac{3}{4} \quad \cot \theta = \frac{4}{3}$$

9. Given $\sec \theta = 3$ find the other five trig values.

$$\sin \theta = \frac{2\sqrt{2}}{3} \quad \csc \theta = \frac{3}{2\sqrt{2}}$$
$$\cos \theta = \frac{1}{3} \quad \sec \theta = 3$$
$$\tan \theta = 2\sqrt{2} \quad \cot \theta = \frac{\sqrt{2}}{2\sqrt{2}}$$
Using Special Right Triangles: Use the rules for a 30, 60, 90 triangle or a 45, 45, 90 triangles to solve for \( x \) and \( y \).

10. 

11. 

12. 

13. 

14. Find the following 
   a. \( \tan 45^\circ \)  
   b. \( \sec 30^\circ \)  
   c. \( \sin 60^\circ \) 

15. Find an angle in degrees that would have the following trig value.
   a. \( \tan \theta = 1 \)  
   b. \( \sin \theta = \frac{\sqrt{3}}{2} \)  
   c. \( \csc \theta = 2 \) 
   d. \( \cos \theta = \frac{\sqrt{2}}{2} \)  
   e. \( \cot \theta = \sqrt{3} \)  
   f. \( \sec \theta = \frac{2\sqrt{3}}{3} \)
Angles of Elevation and Depression.

Word Problems

For problems 16-19, draw a picture, label, set up an equation and solve. Label your answers.

16. At a point on the ground 40 feet from the foot of a tree, the angle of elevation to the top of the tree is 35°. Find the height of the tree to the nearest foot.

17. A boy is flying a kite lets out 250 feet of string which makes an angle of 48° with the ground. Assuming that the string is stretched taut, find to the nearest foot, how high the kite is above the ground.

18. A man walked 3200 feet along a straight road which is inclined 7° to the horizontal. Find, to the nearest foot, the horizontal distance traveled by the man.

19. A man standing on a cliff 400 ft high sights his friend at a 32° angle of depression walking on the beach. How far is the friend from the base of the cliff? (round to the nearest tenth of a foot)