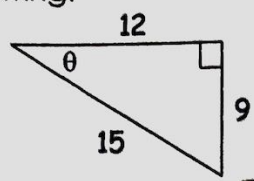


Geometry
Review for Quiz - Trig Ratios

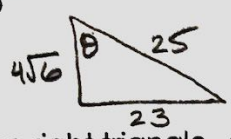
Name: Key
Date: _____

Find the following:



$\sin \theta = \frac{9}{15} = \frac{3}{5}$ $\cos \theta = \frac{12}{15} = \frac{4}{5}$ $\tan \theta = \frac{9}{12} = \frac{3}{4}$

2. If $\sin \theta = \frac{23}{25}$, find $\cos \theta = \frac{4\sqrt{6}}{25}$ and $\tan \theta = \frac{23\sqrt{6}}{24}$



$\frac{23}{4\sqrt{6}} \cdot \frac{\sqrt{6}}{\sqrt{6}} = \frac{23\sqrt{6}}{4 \cdot 6}$

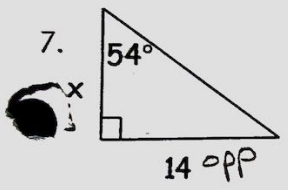
$23^2 + b^2 = 25^2$
 $b^2 = 96$
 $b = 4\sqrt{6}$

3. For any given right triangle, $\cos 81^\circ = \sin 9^\circ$

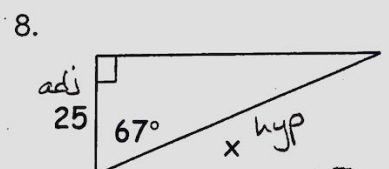
Find the value of each. Round your answer to the nearest hundredth.

4. $\sin 34^\circ \approx .56$ 5. $\cos 85^\circ \approx .09$ 6. $\tan 89^\circ \approx 57.29$

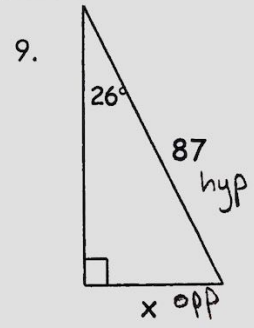
Write the trig equation and find the missing sides. Round answers to the nearest hundredth.



$\tan 54^\circ = \frac{14}{x}$
 $x = \frac{14}{\tan 54}$
 $x \approx 10.17$

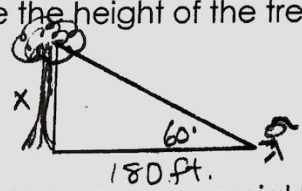


$\cos 67^\circ = \frac{25}{x}$
 $x = \frac{25}{\cos 67}$
 $x \approx 63.98$



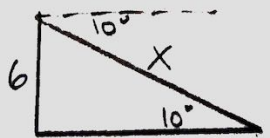
$\sin 26^\circ = \frac{x}{87}$
 $87 \sin 26 = x$
 $x \approx 38.14$

10. The sequoia redwood trees in California are some of the tallest trees in the world. If a person were standing 180 feet from one of these trees with a 60° angle of elevation to the top of the tree, what would be the height of the tree?



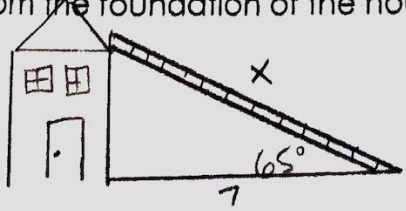
$\tan 60^\circ = \frac{x}{180}$
 $180 \tan 60 = x$
 $x \approx 311.77 \text{ ft.}$

11. A passenger on a commercial flight from Augusta to Atlanta looks out his window and sees the city of Macon in the distance. If the angle of depression is 10° and the plane is flying at an altitude of 6 miles, what is the direct distance from the plane to the city of Macon?



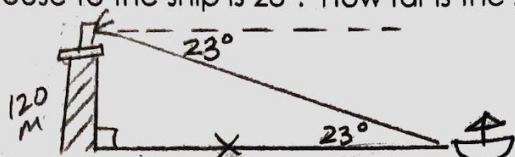
$\sin 10 = \frac{6}{x}$
 $x = \frac{6}{\sin 10}$
 $x \approx 34.55 \text{ miles}$

12. A ladder leaning against a house makes an angle of 65° with the ground. The foot of the ladder is 7 feet from the foundation of the house. How long is the ladder?



$\cos 65^\circ = \frac{7}{x}$
 $x = \frac{7}{\cos 65}$
 $x \approx 16.56 \text{ ft.}$

13. The top of a lighthouse is 120 meters above sea level. The angle of depression from the top of the lighthouse to the ship is 23° . How far is the ship from the foot of the lighthouse?



$$\tan 23 = \frac{120}{x}$$

$$x = \frac{120}{\tan 23}$$

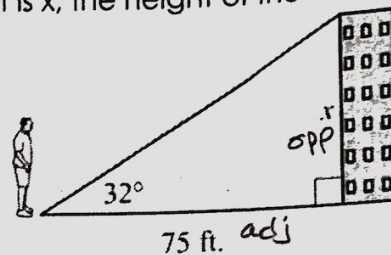
$$x \approx 282.70 \text{ m}$$

14. Ricardo is standing 75 feet away from the base of a building. The angle of elevation from the ground where Ricardo is standing to the top of the building is 32° . What is x , the height of the building, to the nearest tenth of a foot?

$$\tan 32 = \frac{x}{75}$$

$$75 \tan 32 = x$$

$$x \approx 46.9 \text{ ft.}$$



Note: Figure not drawn to scale.

15. What is the area of triangle RST? ($A = \frac{1}{2}bh$)

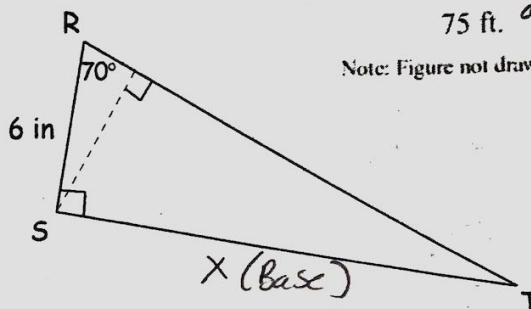
$$\tan 70^\circ = \frac{x}{6}$$

$$6 \tan 70^\circ = x$$

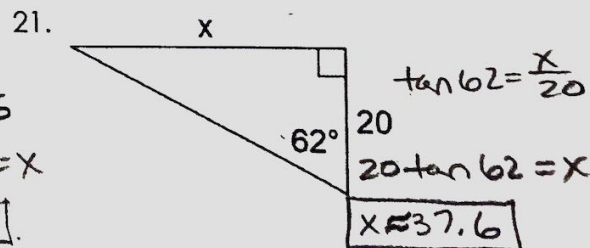
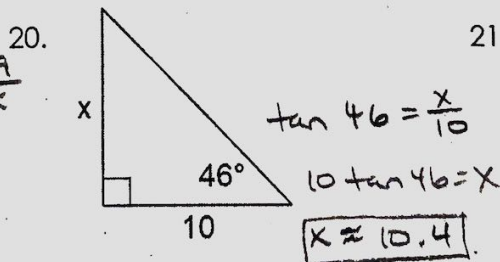
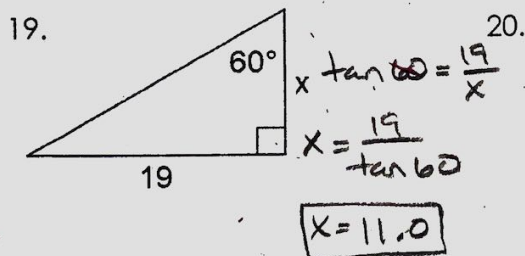
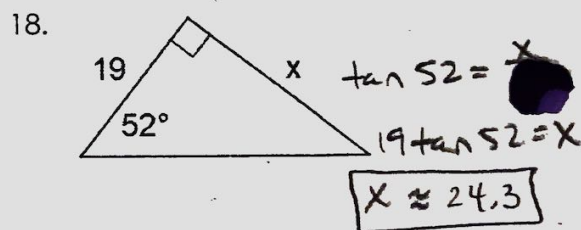
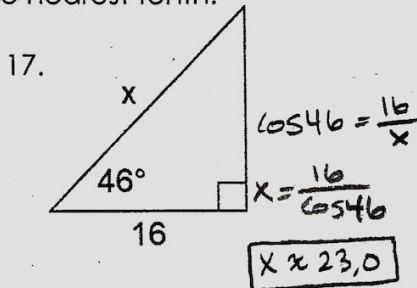
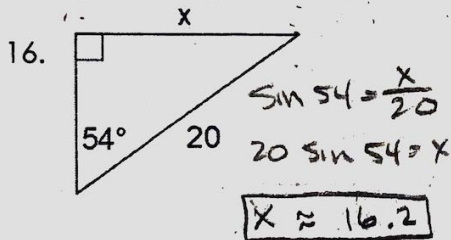
$$x = 16.5$$

$$\text{Area} = \frac{1}{2}(16.5)(6)$$

$$A = 49.5 \text{ in}^2$$



Find the missing side. Round to the nearest tenth.



Use co-functions to answer the following:

22. $\sin \theta = \frac{3}{8}$
 $\cos(90 - \theta) = \frac{3}{8}$

23. $\cos \theta = \frac{31}{72}$
 $\sin(90 - \theta) = \frac{31}{72}$

24. $\tan \theta = \frac{51}{43}$
 $\tan(90 - \theta) = \frac{43}{51}$

25. $\sin 17^\circ = \cos 73^\circ$

26. $\sin 41^\circ = \cos 49^\circ$

27. $\sin 67^\circ = \cos 23^\circ$

28. In $\triangle ABC$: $m\angle C = 90^\circ$. If $\sin A = 8x - 6$ and $\cos B = 3x - 5$, then $x = \frac{1}{5}$

$$\begin{array}{r} 8x - 6 = 3x - 5 \\ -3x \quad -3x \\ \hline 5x - 6 = -5 \\ +6 \quad +6 \\ \hline 5x = 1 \\ x = \frac{1}{5} \end{array}$$