

Standard 7A Review: Name: key

1. Determine the quadrant of the following angles.

- a. $\frac{9\pi}{6}$ on y-axis
 b. -245° II
 c. 5 IV
 d. $\frac{-16\pi}{17}$ III

2. Write each of the following angles in Radians.

- a. 0° 0
 b. 45° $\frac{\pi}{4}$
 c. 300° $\frac{5\pi}{3}$
 d. 480° $\frac{8\pi}{3}$

3. Write each of the following angles in Degrees.

- a. 2π 360°
 b. $\frac{2\pi}{3}$ 120°
 c. $\frac{5\pi}{6}$ 150°
 d. $\frac{9\pi}{4}$ 405°

4. Find the exact value of all 6 trig. functions at $\theta = \frac{5\pi}{6}$.

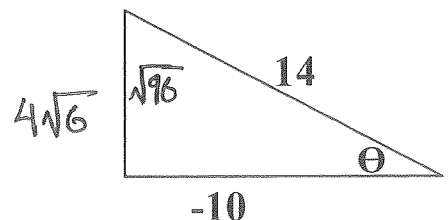
$$\begin{aligned} \sin \theta &= \underline{+\frac{1}{2}} & \csc \theta &= \underline{+2} \\ \cos \theta &= \underline{-\frac{\sqrt{3}}{2}} & \sec \theta &= \underline{-\frac{2\sqrt{3}}{3}} \\ \tan \theta &= \underline{-\frac{\sqrt{3}}{3}} & \cot \theta &= \underline{-\sqrt{3}} \end{aligned}$$

5. Find the exact value of all 6 trig. functions if $\tan \theta = \frac{3}{4}$ in Quadrant III.

$$\begin{aligned} \sin \theta &= \underline{-\frac{3}{5}} & \csc \theta &= \underline{-\frac{5}{3}} \\ \cos \theta &= \underline{-\frac{4}{5}} & \sec \theta &= \underline{-\frac{5}{4}} \\ \tan \theta &= \underline{+\frac{3}{4}} & \cot \theta &= \underline{+\frac{4}{3}} \end{aligned}$$

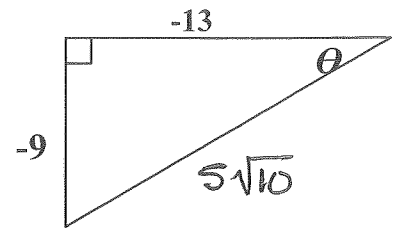
6. Find the exact value of all 6 trig. functions of θ .

$$\begin{aligned} \sin \theta &= \underline{\frac{2\sqrt{6}}{7}} & \csc \theta &= \underline{\frac{7\sqrt{6}}{12}} \\ \cos \theta &= \underline{-\frac{5}{7}} & \sec \theta &= \underline{-\frac{7}{5}} \\ \tan \theta &= \underline{-\frac{2\sqrt{6}}{5}} & \cot \theta &= \underline{-\frac{5\sqrt{6}}{12}} \end{aligned}$$



7. Find the exact value of all 6 trig. functions of θ .

$$\begin{aligned} \sin \theta &= \frac{-9\sqrt{10}}{50} & \csc \theta &= \frac{5\sqrt{10}}{9} \\ \cos \theta &= \frac{-13\sqrt{10}}{50} & \sec \theta &= \frac{5\sqrt{10}}{13} \\ \tan \theta &= \frac{9}{13} & \cot \theta &= \frac{13}{9} \end{aligned}$$



8. Use the period to help evaluate the following trig functions.

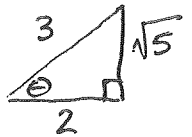
$$\begin{aligned} \text{a. } \cos(3\pi) &= -1 & \text{b. } \sin(405^\circ) &= \frac{\sqrt{2}}{2} & \text{c. } \tan \frac{25\pi}{3} &= \sqrt{3} & \text{d. } \sec(-600^\circ) &= -2 \end{aligned}$$



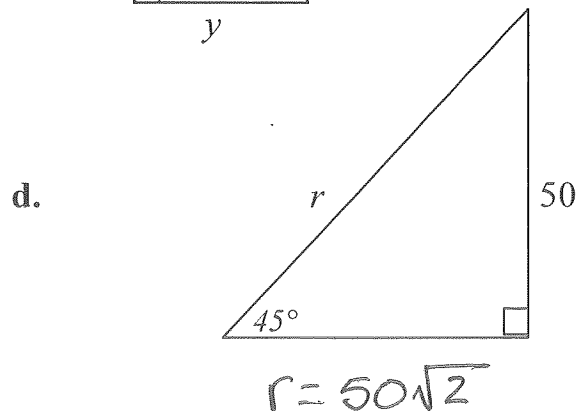
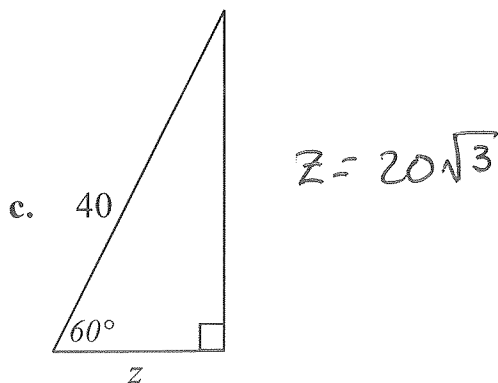
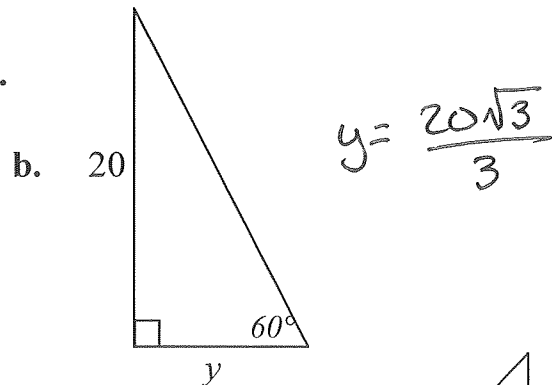
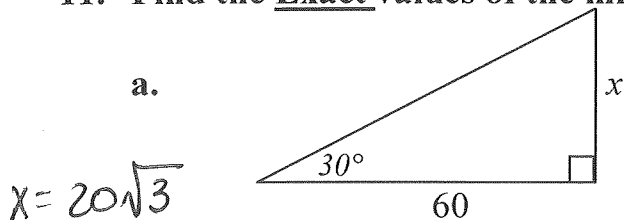
Use the value of the given function to evaluate the remaining ones.

$$\begin{aligned} 9. \sin \theta &= \frac{5}{13} & \text{a. } \csc \theta &= \frac{13}{5} & \text{b. } \cos \theta &= \frac{12}{13} \\ \tan \theta &= \frac{5}{12} & \text{c. } \cot \theta &= \frac{12}{5} & \text{d. } \sin(90^\circ - \theta) &= \frac{12}{13} \end{aligned}$$

$$\begin{aligned} 10. \sec \theta &= \frac{3}{2} & \text{a. } \cos \theta &= \frac{2}{3} & \text{b. } \tan \theta &= \frac{\sqrt{5}}{2} & \text{c. } \sin \theta &= \frac{\sqrt{5}}{3} & \text{d. } \csc(90^\circ - \theta) &= \frac{3}{2} \end{aligned}$$

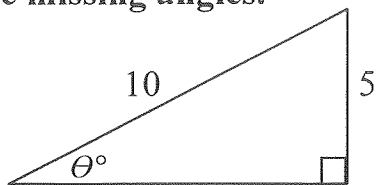


11. Find the Exact values of the missing sides.



11. Find the missing angles.

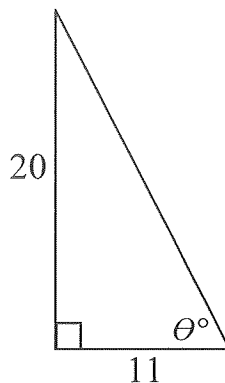
a.



$$\theta = 30^\circ = \frac{\pi}{6}$$

either

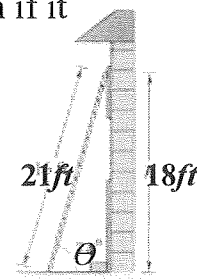
b.



$$\theta = 61.2^\circ = 1.07$$

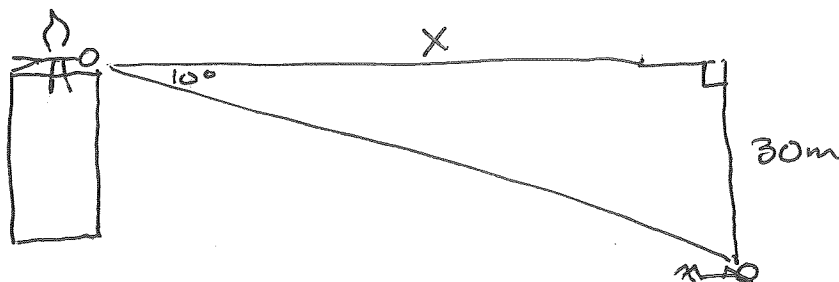
12. A 21ft ladder leans against the side of a house. What is the angle of elevation if it reaches 18ft up the side of the house?

either $\theta = 59^\circ = 1.03$ radians



13. From the top of a 30m Peace Candle, a Math teacher sights a sleeping student at an angle of depression (downward) of 10° . Draw a picture & find how far the student is from the candle.

$$x = 170.14 \text{ m}$$



14. You need to build a ramp up to a 5.5m platform that's 30m away. Draw a picture & find the angle the ramp will make with the ground.



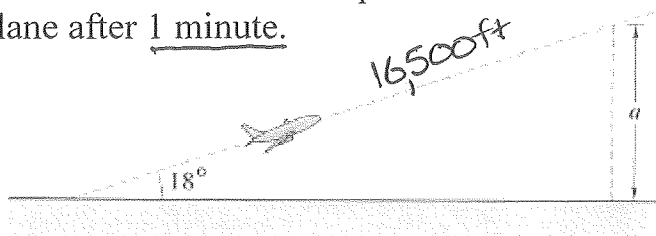
$$\theta = 10.4^\circ = 1.81$$

either

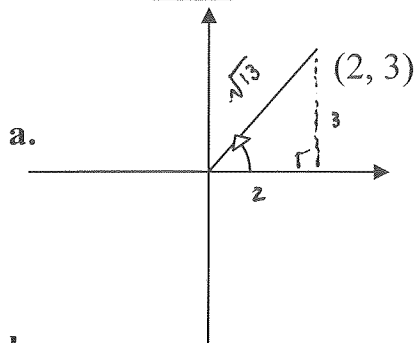
15. When an airplane leaves the runway, its angle of climb is 18° and its speed is 275 feet per second. Find the altitude of the plane after 1 minute.

$$\times 60$$

$$a = 5098.8 \text{ ft}$$



16. Find the exact value of the six trig functions of the angle θ .



$$\sin \theta = \frac{3\sqrt{13}}{13}$$

$$\csc \theta = \frac{\sqrt{13}}{3}$$

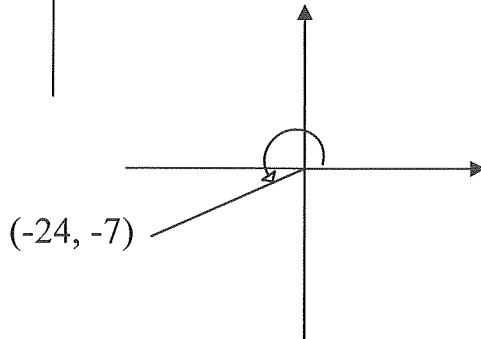
$$\cos \theta = \frac{2\sqrt{13}}{13}$$

$$\sec \theta = \frac{\sqrt{13}}{2}$$

$$\tan \theta = \frac{3}{2}$$

$$\cot \theta = \frac{2}{3}$$

b.



$$\sin \theta = -\frac{7}{25}$$

$$\csc \theta = -\frac{25}{7}$$

$$\cos \theta = -\frac{24}{25}$$

$$\sec \theta = -\frac{25}{24}$$

$$\tan \theta = \frac{7}{24}$$

$$\cot \theta = \frac{24}{7}$$

17. Determine which quadrant θ is in.

a. $\sin \theta < 0$ & $\tan \theta < 0$ **IV**

b. $\sin \theta > 0$ & $\cos \theta < 0$ **II**

c. $\tan \theta > 0$ & $\cos \theta < 0$ **III**

d. $\sec \theta < 0$ & $\cot \theta < 0$ **II**

18. Use the value of the given function to evaluate the remaining ones.

$$\cos \theta = -\frac{5}{7}$$

a. $\sin \theta = -\frac{2\sqrt{6}}{7}$

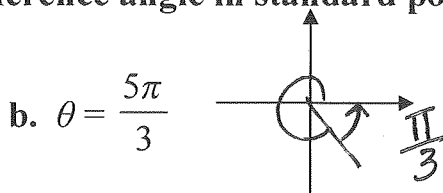
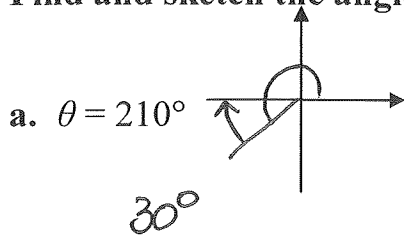
b. $\tan \theta = \frac{2\sqrt{6}}{5}$

$$\sin \theta < 0$$

c. $\csc \theta = -\frac{7\sqrt{6}}{12}$

d. $\cot \theta = \frac{5\sqrt{6}}{12}$

19. Find and sketch the angle θ and the reference angle in standard position.



20. Find the sin, cos and tan of each angle without a calculator.

a. $\theta = 135^\circ$

b. $\theta = 240^\circ$

c. $\theta = \frac{11\pi}{6}$

d. $\theta = \frac{5\pi}{4}$

$$\sin \theta = +\frac{\sqrt{2}}{2}$$

$$\sin \theta = -\frac{\sqrt{3}}{2}$$

$$\sin \theta = -\frac{1}{2}$$

$$\sin \theta = -\frac{\sqrt{2}}{2}$$

$$\cos \theta = -\frac{\sqrt{2}}{2}$$

$$\cos \theta = -\frac{1}{2}$$

$$\cos \theta = +\frac{\sqrt{3}}{2}$$

$$\cos \theta = -\frac{\sqrt{2}}{2}$$

$$\tan \theta = -1$$

$$\tan \theta = +\sqrt{3}$$

$$\tan \theta = -\frac{\sqrt{3}}{3}$$

$$\tan \theta = +1$$