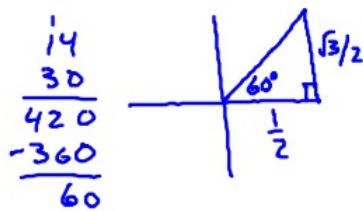


Unit 4 Test C Practice Test

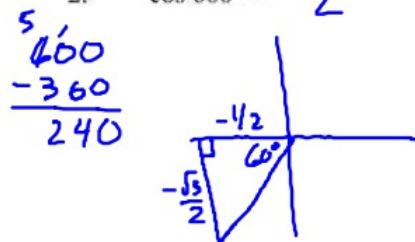
Name _____

Find the exact value of the function without using a calculator.

$$\frac{\pi}{6} = 30^\circ \quad 1. \tan \frac{14\pi}{6} = \sqrt{3}$$



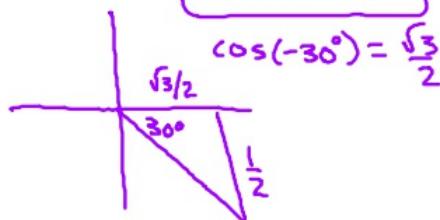
$$2. \cos 600^\circ = -\frac{1}{2}$$



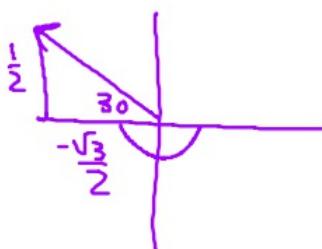
$$\frac{\pi}{4} = 45^\circ \quad 3. \sin \frac{19\pi}{4} = \frac{\sqrt{2}}{2}$$

$$\begin{array}{r} 19 \\ 45 \\ 95 \\ 76 \\ \hline 855 \end{array} \quad \begin{array}{r} 855 \\ -360 \\ \hline 495 \\ -360 \\ \hline 135^\circ \end{array}$$

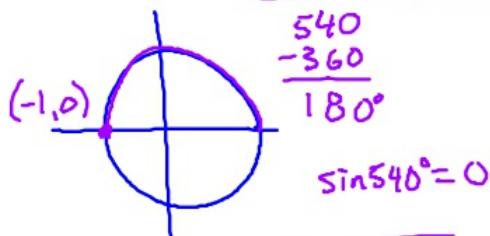
$$5. \sec(-30^\circ) = \frac{2}{\sqrt{3}}$$



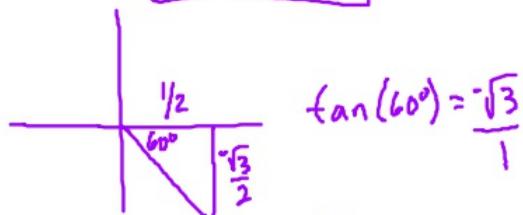
$$7. \cos(-210^\circ) = -\frac{\sqrt{3}}{2}$$



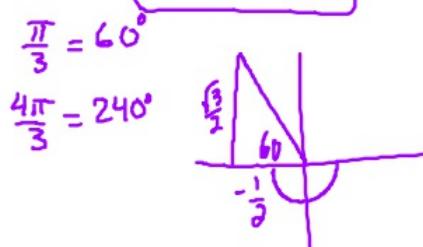
$$4. \csc 540^\circ = \text{UNDEFINED}$$



$$6. \cot \frac{-\pi}{3} = -\frac{1}{\sqrt{3}}$$



$$8. \sin \frac{-4\pi}{3} = \frac{\sqrt{3}}{2}$$



Find the exact value of the expression. Give the answer in both degrees and radians.

$$1. \sin^{-1} \frac{1}{2} = 30^\circ = \frac{\pi}{6}$$

$$2. \cos^{-1} \frac{-\sqrt{3}}{2} = 150^\circ = \frac{5\pi}{6}$$



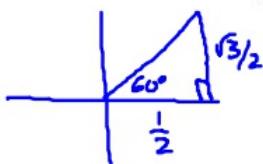
$$3. \tan^{-1}(1) = 45^\circ = \frac{\pi}{4}$$

$$4. \tan^{-1}\left(\frac{-1}{\sqrt{3}}\right) = -30^\circ = -\frac{\pi}{6}$$

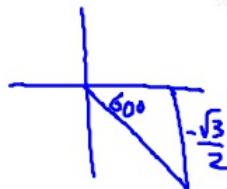
$$\frac{y}{x} = \frac{-1/2}{+\sqrt{3}/2} \quad \left(\frac{\sqrt{3}}{2}, -\frac{1}{2} \right)$$

cos sin

$$5. \cos^{-1}\left(\frac{1}{2}\right) = 60^\circ = \frac{\pi}{3}$$



$$6. \sin^{-1}\left(\frac{-\sqrt{3}}{2}\right) = -60^\circ = -\frac{\pi}{3}$$



Solve each equation between $0 \leq \theta < 360$ or $0 \leq \theta < 2\pi$

$$9. \quad \begin{array}{r} \sqrt{2} \sin \theta - 1 = 0 \\ +1 +1 \\ \hline \sqrt{2} \sin \theta = 1 \\ \hline \end{array}$$

$$\boxed{\theta = 45^\circ}$$

$$\boxed{\theta = 135^\circ}$$

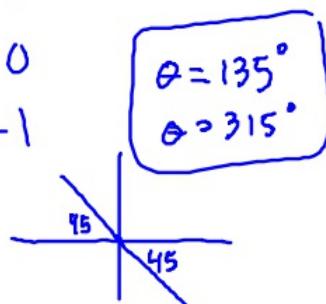
$$\sin \theta = \frac{1}{\sqrt{2}}$$

$$\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$10. \quad \tan^2 \theta + 2 \tan \theta + 1 = 0$$

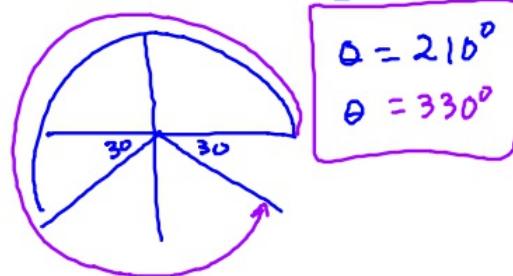
$$(\tan \theta + 1)(\tan \theta + 1) = 0$$

$$\begin{aligned} \tan \theta + 1 &= 0 \\ \tan \theta &= -1 \end{aligned}$$



$$11. \quad \begin{array}{r} -2 \sin \theta = 1 \\ -2 \quad -2 \\ \hline \end{array}$$

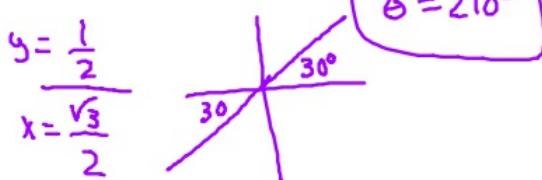
$$\sin \theta = -\frac{1}{2}$$



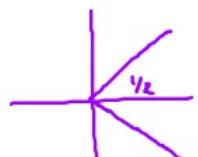
$$12. \quad \sqrt{3} \tan(\theta) + 1 = 2$$

$$\begin{array}{r} -1 -1 \\ \hline \sqrt{3} \tan \theta = 1 \\ \hline \sqrt{3} \end{array}$$

$$\tan \theta = \frac{1}{\sqrt{3}}$$

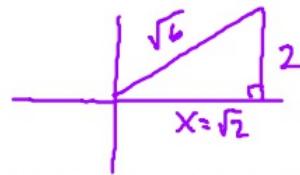


$$13. \quad \cos\left(\theta + \frac{\pi}{6}\right) = \frac{1}{2}$$



$$\begin{array}{r} \theta + 30^\circ = 60^\circ \\ -30^\circ \quad -30^\circ \\ \hline \theta = 30^\circ \end{array}$$

$$\begin{array}{r} \theta + 30^\circ = 300^\circ \\ -30^\circ \quad -30^\circ \\ \hline \theta = 270^\circ \end{array}$$



1. Given that $\csc \theta = \frac{\sqrt{6}}{2}$, use definitions or identities to find the exact value of the remaining five trigonometric functions of the acute angle θ .

$$\sin \theta = \frac{2}{\sqrt{6}} = \frac{\text{opp}}{\text{adj}}$$

$$\csc \theta = \frac{\sqrt{6}}{2}$$

$$\cos \theta = \frac{\sqrt{2}}{\sqrt{6}}$$

$$\sec \theta = \frac{\sqrt{6}}{\sqrt{2}}$$

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

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

$$x^2 + 2^2 = \sqrt{6}^2$$

$$x^2 + 4 = 6$$

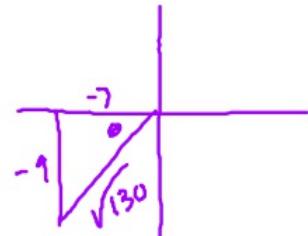
$$x^2 = 2$$

$$x = \sqrt{2}$$

2. Find the six trigonometric functions given the point (-7, -9)

$$\sin \theta = \frac{-9}{\sqrt{130}}$$

$$\csc \theta = \frac{\sqrt{130}}{-9}$$



$$\cos \theta = \frac{-7}{\sqrt{130}}$$

$$\sec \theta = \frac{\sqrt{130}}{-7}$$

$$\tan \theta = \frac{9}{7}$$

$$\cot \theta = \frac{7}{9}$$

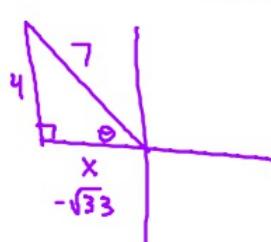
$$(-7)^2 + (-9)^2 = c^2$$

$$49 + 81 = c^2$$

$$130 = c^2$$

Given the following information, find the exact value of the trigonometric function

3. $\csc \theta = \frac{7}{4}$ and $\tan \theta < 0$ find $\cos \theta$



$$\sin \theta = \frac{4}{7}$$

I or II

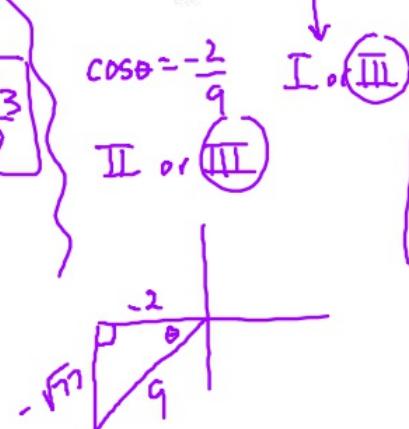
$$x^2 + 4^2 = 7^2$$

$$x^2 + 16 = 49$$

$$x^2 = 33$$

$$x = \sqrt{33}$$

4. $\sec \theta = -\frac{9}{2}$ and $\tan \theta > 0$ find $\cot \theta$



$$\cos \theta = -\frac{2}{7}$$

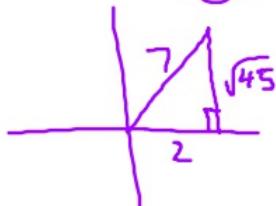
I or III

$$\cot \theta = \frac{2}{\sqrt{77}}$$

5. $\cos \theta = \frac{2}{7}$ and $\cot \theta > 0$ find $\tan \theta$

I or IV

I or III



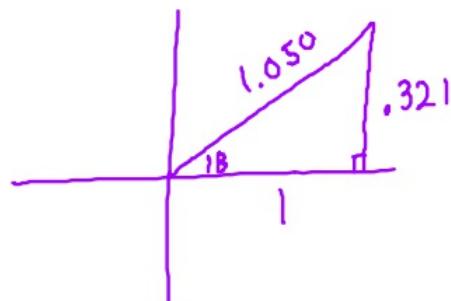
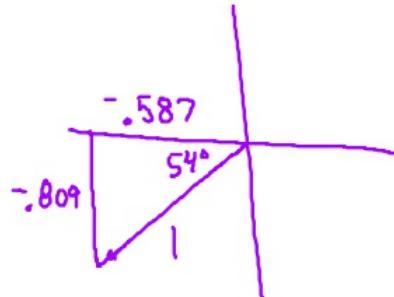
$$\tan \theta = \frac{\sqrt{45}}{2}$$

Use a calculator to find each value. Round your answer to 3 decimal places then draw the triangle that corresponds to value given to you by the calculator.

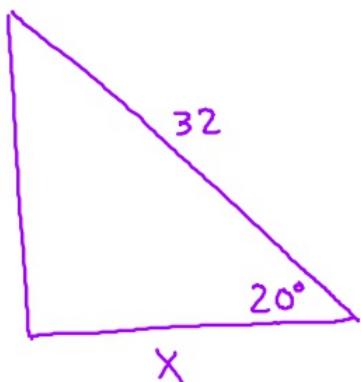
$$\begin{array}{r} 234 \\ -180 \\ \hline 54 \end{array}$$

6. $\sin 234^\circ = -0.809$

7. $\tan^{-1}(0.321) = 17.796^\circ$



8. A 32-foot ladder is leaning against the side of a building. If the ladder makes an angle of 20° with the side of the building, how far is the bottom of the ladder from the base of the building? Round your answer to the hundredths place.



$$\cos 20^\circ = \frac{X}{32}$$

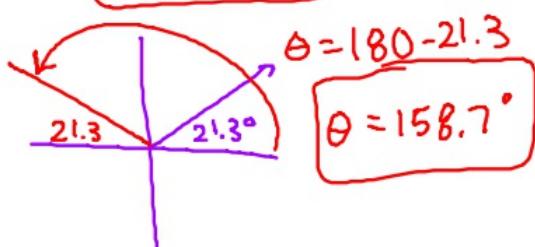
$$32 \cos 20^\circ = X$$

$$30.07 = X$$

Solve the equation between $0 \leq \theta < 360$. Round your answers to the nearest tenth.

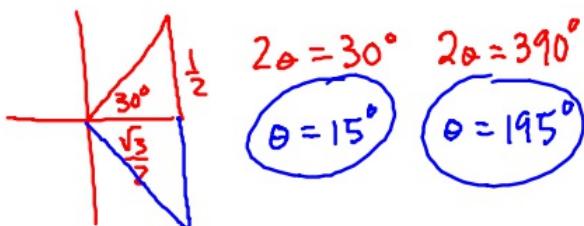
9. $\sin \theta = .364$

$$\theta = 21.3^\circ$$



Solve the equation between $0 \leq \theta < 360$ by finding the exact angles.

10. $\cos(2\theta) = \frac{\sqrt{3}}{2}$



$$2\theta = 330^\circ \quad 2\theta = 690^\circ$$

$$\theta = 165^\circ$$

$$\theta = 345^\circ$$