

Today's Plan:

Learning Target (standard): I will use the fundamental identities, the even and odd properties of trigonometric functions and the complementary angle theorem to evaluate trigonometric expressions.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

Find the exact value of the remaining trig functions.

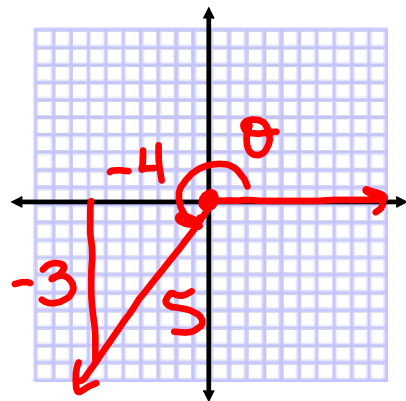
$$\cos \theta = -\frac{4}{5} = \frac{x}{r} \quad x(-)$$

$$\tan \theta > 0 \quad \frac{y}{x} \quad x(-) \quad \neq \quad y(-)$$

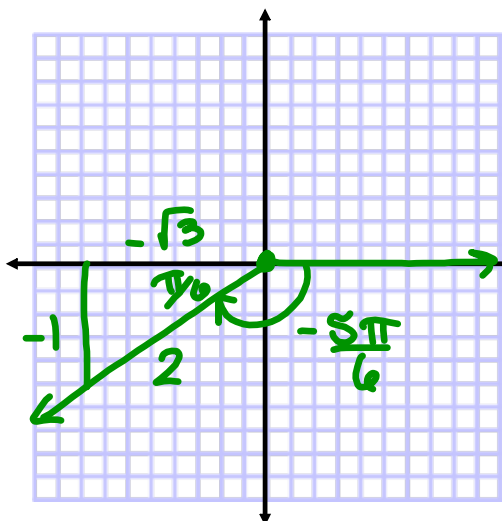
$$\sin \theta = -\frac{3}{5} \quad \csc \theta = -\frac{5}{3}$$

$$\cos \theta = -\frac{4}{5} \quad \sec \theta = -\frac{5}{4}$$

$$\tan \theta = \frac{3}{4} \quad \cot \theta = \frac{4}{3}$$



Find the trigonometric values for $-\frac{5\pi}{6}$



$$\sin\left(-\frac{5\pi}{6}\right) = -\frac{1}{2} \quad \csc\left(-\frac{5\pi}{6}\right) = -2$$

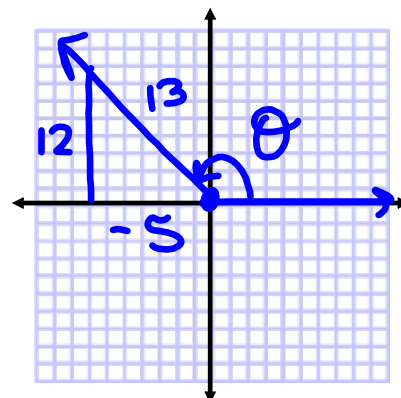
$$\cos\left(-\frac{5\pi}{6}\right) = -\frac{\sqrt{3}}{2} \quad \sec\left(-\frac{5\pi}{6}\right) = -\frac{2\sqrt{3}}{3}$$

$$\tan\left(-\frac{5\pi}{6}\right) = \frac{\sqrt{3}}{3} \quad \cot\left(-\frac{5\pi}{6}\right) = \sqrt{3}$$

Find the exact value of the remaining trig functions.

$$\sin \theta = \frac{12}{13} = \frac{y}{r} \quad y(+)$$

$$\cos \theta < 0 = \frac{x}{r} \quad x(-) \quad \text{QII}$$



$$\sin \theta = \frac{12}{13}$$

$$\csc \theta = \frac{13}{12}$$

$$\cos \theta = -\frac{5}{13}$$

$$\sec \theta = -\frac{13}{5}$$

$$\tan \theta = -\frac{12}{5}$$

$$\cot \theta = -\frac{5}{12}$$

List the Fundamental Identities.

Reciprocal:

$$1) \csc \theta = \frac{1}{\sin \theta}$$

$$2) \sec \theta = \frac{1}{\cos \theta}$$

$$3) \cot \theta = \frac{1}{\tan \theta}$$

Quotient:

$$4) \tan \theta = \frac{\sin \theta}{\cos \theta}$$

$$5) \cot \theta = \frac{\cos \theta}{\sin \theta}$$

Pythagorean:

$$6) \sin^2 \theta + \cos^2 \theta = 1$$

$$7) 1 + \cot^2 \theta = \csc^2 \theta$$

$$8) \tan^2 \theta + 1 = \sec^2 \theta$$

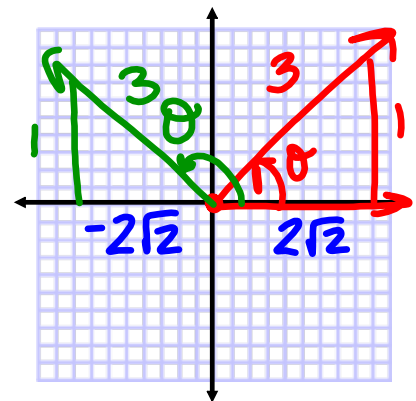
If $\sin \theta = \frac{1}{3}$, find the exact value of:

$$\cos(90^\circ - \theta) = \sin \theta = \frac{1}{3}$$

$$\cos^2 \theta = \left(\frac{2\sqrt{2}}{3}\right)^2 \text{ or } \left(-\frac{2\sqrt{2}}{3}\right)^2 = \frac{8}{9}$$

$$\csc \theta = 3$$

$$\sec\left(\frac{\pi}{2} - \theta\right) = \csc \theta = 3$$



Find the **exact** value.

$$\sin 80^\circ \csc 80^\circ$$

$$\cancel{\sin 80^\circ} \left(\frac{1}{\cancel{\sin 80^\circ}} \right)$$

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Find the **exact** value.

$$\sin 38^\circ - \cos 52^\circ$$

$$\sin 38^\circ - (\sin(90^\circ - 52^\circ))$$

$$\sin 38^\circ - \sin 38^\circ$$

$$0$$

Find the **exact** value.

$$\sin^2 40^\circ + \cos^2 40^\circ$$

$$(1)$$

$$1$$

Find the **exact** value.

$$\tan 40^\circ - \frac{\sin 40^\circ}{\cos 40^\circ}$$

$$\tan 40^\circ - (\tan 40^\circ)$$

$$0$$

Find the **exact** value.

$$\frac{\cos 10^\circ}{\sin 80^\circ}$$

$$\frac{(\sin(90^\circ - 10^\circ))}{\sin 80^\circ}$$

$$\sin 80^\circ$$

$$\frac{\sin 80^\circ}{\sin 80^\circ}$$

1

Find the **exact** value.

$$1 - \cos^2 20^\circ - \cos^2 70^\circ$$

$$1 - \cos^2 20^\circ - (\sin(90^\circ - 70^\circ))^2$$

$$1 - \cos^2 20^\circ - \sin^2 20^\circ \quad 1 - (\cos^2 20^\circ)$$

$$(\sin^2 20^\circ + \cos^2 20^\circ) - \cos^2 20^\circ - \sin^2 20^\circ$$

0

Assignment:

p.405 #68-82 even

p.415 #48-62 even