

Name: Key



Unit 6: Trigonometry

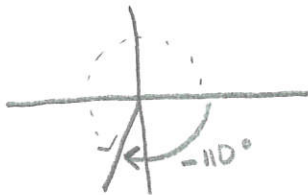
1. The point  $(\frac{1}{2}, \frac{\sqrt{3}}{2})$  is on the terminal side of an angle in standard position. What is the tangent of the angle?

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

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

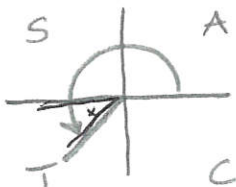
$$\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \frac{\sqrt{3}}{2} \cdot \frac{2}{1} = \sqrt{3}$$

2. What angle between  $0^\circ$  and  $360^\circ$  in a unit circle has the same terminal side as an angle of  $-110^\circ$ ?



$$-110 + 360 = 250^\circ$$

3.  $\theta$  is an angle whose terminal side is in the third quadrant. If  $\tan \theta = .4663$ , determine  $\theta$  to the nearest degree.

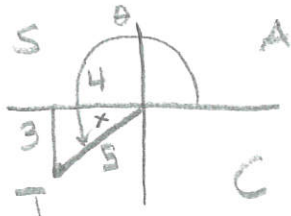


$$\text{ref } \angle = \tan^{-1}(.4663)$$

$$= 24.99\dots$$

$$Q_{III} = 180 + 24.99\dots = 205^\circ$$

4. The terminal side of an angle passes through the point  $(-4, -3)$ . Name a possible value for the angle.



$$\tan \theta = \tan x = \frac{3}{4}$$

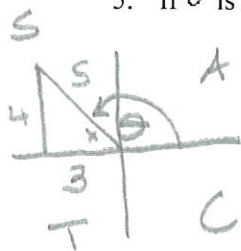
$$x = \tan^{-1}\left(\frac{3}{4}\right)$$

$$x = 36.86\dots$$

$$\theta = 180 + 36.86\dots$$

$$= 216.86$$

5. If  $\theta$  is an angle in standard position and  $P(-3, 4)$  is a point on the terminal side of  $\theta$ , what is the value of  $\sin \theta$ ?



1)  $\frac{3}{5}$

3)  $\frac{4}{5}$

2)  $-\frac{3}{5}$

4)  $\frac{4}{5}$

$$\sin \theta = +\sin x = \frac{4}{5}$$

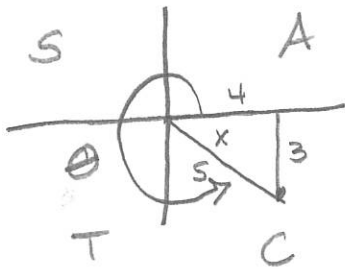
6. If  $\tan A = 0.4750$ , find the value of  $A$  to the nearest tenth.

$$A = \tan^{-1}(0.4750)$$

$$= 25.407\dots$$

$$= 25.4$$

7. If the terminal side of angle  $\theta$  passes through point  $(4, -3)$ , what is the value of  $\cos \theta$ ?

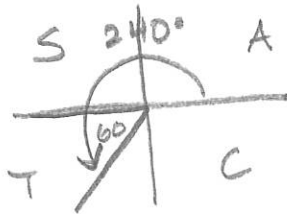


$$\cos \theta = \cos x = \frac{4}{5}$$

8. If  $\sin \theta = 0.5035$ , find the value of positive acute angle  $\theta$  to the nearest hundredth.

$$\begin{aligned} \theta &= \sin^{-1}(0.5035) \\ &= 30.231\dots \\ &= 30.23' \end{aligned}$$

9. Determine the exact value of  $\sin 240$ ,  $\cos 240$ , and  $\tan 240$ .



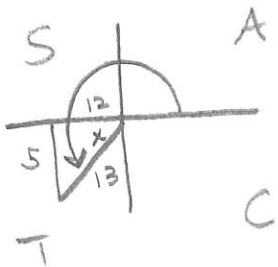
$$\begin{aligned} \sin 240 &= -\sin 60 = -\frac{\sqrt{3}}{2} \\ \cos 240 &= -\cos 60 = -\frac{1}{2} \\ \tan 240 &= +\tan 60 = \sqrt{3} \end{aligned}$$

10. Given  $\sin A = \frac{-5}{13}$  and  $\tan A > 0$ . Determine:

a.  $\cos A$

Q III

b. the measure of angle  $A$  to the nearest tenth.



$$a) \cos A = -\cos x = -\frac{12}{13}$$

$$b) \tan A = \tan x = \frac{5}{12}$$

$$\begin{aligned} x &= \tan^{-1}\left(\frac{5}{12}\right) \\ &= 22.619\dots \\ A &= 180 + 22.619 \\ &= 202.6^\circ \end{aligned}$$

