

# Key

## UNIT 6 REVIEW SHEET

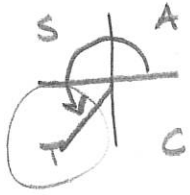
1. Convert the following radian measures to degrees:

a.  $\frac{\pi}{3} = \frac{180}{3} = 60^\circ$       b.  $\frac{2\pi}{5} = \frac{2(180)}{5} = 72^\circ$       c.  $\frac{13\pi}{4} = \frac{13(180)}{4} = 585^\circ$

2. Convert the following degree measures to radians:

$\frac{270}{x} = \frac{180}{\pi}$       a.  $270^\circ = \frac{3\pi}{2}$       b.  $-110^\circ = -\frac{110}{180}\pi = -\frac{11\pi}{18}$       c.  $405^\circ = \frac{405}{180}\pi = \frac{9\pi}{4}$

3. If  $\cos A = -\frac{8}{17}$  and  $\tan A > 0$ , find:



a.  $\sin A$

$-\frac{15}{17}$

b.  $\tan A$

$\frac{15}{8}$

c. A to the nearest degree

ref  $\angle = \cos^{-1}\left(\frac{8}{17}\right) = 61.92^\circ$   
 $A = 180 + 61.92 \dots = 242^\circ$

d.  $\csc A$

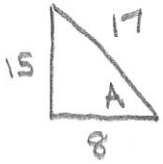
$-\frac{17}{15}$

e.  $\cot A$

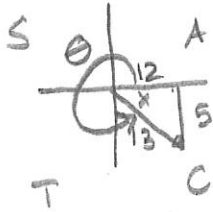
$\frac{8}{15}$

f.  $\sec A$

$-\frac{17}{8}$



4. If the terminal side of  $\theta$ , in standard position, passes through the point  $(12, -5)$ , what is the numerical value of:



a.  $\sin \theta$

$-\frac{5}{13}$

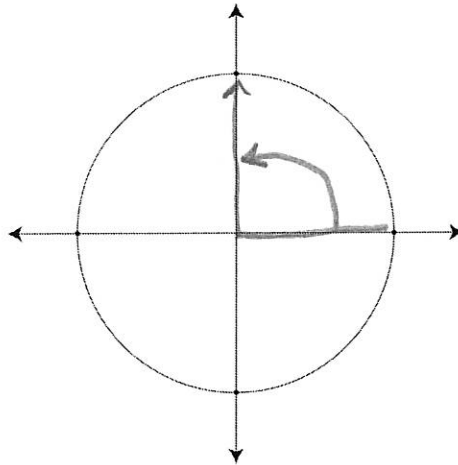
b.  $\cos \theta$

$\frac{12}{13}$

c.  $\cot \theta$

$-\frac{12}{5}$

5. a. On the unit circle shown, sketch an angle in standard position that measures  $\frac{5}{2}\pi$  radians.



$\frac{5(180)}{2} = 450$

$450 - 360 = 90$

b. What is the point of intersection between the angle and the unit circle?

$$(\cos \theta, \sin \theta)$$

$$(\cos 90, \sin 90) = (0, 1)$$

c. Name another angle, in radian measure that passes through the same point.

$$\frac{90}{x} = \frac{180}{\pi}$$

$$180x = 90\pi$$

$$x = \frac{\pi}{2}$$

6. What is the length of the arc on the unit circle subtended by an angle of  $220^\circ$ ?

$$S = r\theta$$

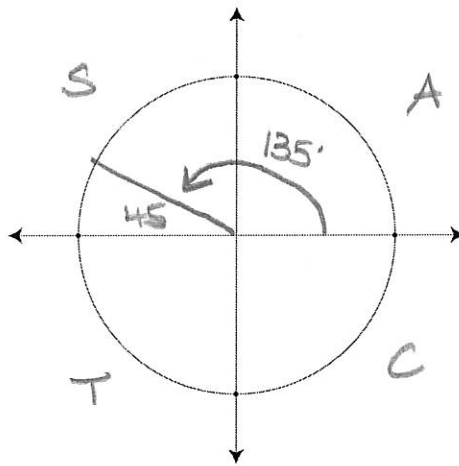
$$S = 1\left(\frac{11\pi}{9}\right) = \frac{11\pi}{9}$$

$$\frac{220}{x} = \frac{180}{\pi}$$

$$180x = 220\pi$$

$$x = \frac{11\pi}{9}$$

7. a. On the unit circle shown, sketch an angle in standard position that measures  $135^\circ$ .



b. Find the exact value of  $\cos 135^\circ$ .  $= -\cos 45 = -\frac{\sqrt{2}}{2}$

8. Simplify  $\frac{1}{\cos^2 \theta} - \tan^2 \theta$ .  $= \frac{1}{\cos^2 \theta} - \frac{(\sin^2 \theta)}{\cos^2 \theta} = \frac{1 - \sin^2 \theta}{\cos^2 \theta} = \frac{\cos^2 \theta}{\cos^2 \theta} = 1$

9. Find the exact value of  $\tan \frac{\pi}{4} - \cos \frac{\pi}{3} + \sin \frac{\pi}{3}$ .

$$1 - \frac{1}{2} + \frac{\sqrt{3}}{2} = \frac{1}{2} + \frac{\sqrt{3}}{2}$$