

# TRUE OR FALSE: (Solution Key)

- |     |   |   |     |          |
|-----|---|---|-----|----------|
| 1)  | $\frac{\pi}{9} = 20^\circ$  |   | 1)  | <u>T</u> |
| 2)  | The arclength, given a $60^\circ$ slice with radius 2 feet is 120 feet.   |   |     | <u>F</u> |
| 3)  | The angle of measure 6 is in the 1 <sup>st</sup> quadrant.                |   |     | <u>F</u> |
| 4)  | $\sin 37^\circ \sec 37^\circ = 1$   | $\rightarrow$ (means 6 radians!)  | 4)  | <u>F</u> |
| 5)  | $\cos 20^\circ - \sin 70^\circ = 0$                                       | (complement. angles)  |     | <u>T</u> |
| 6)  | $\cos 25^\circ = \sin 75^\circ$   | $\cos 25^\circ = \sin (65^\circ)$   |     | <u>F</u> |
| 7)  | $\sin \frac{\pi}{2} - \cos \pi = 2$                                       | $1 - (-1) = 2$  | 7)  | <u>T</u> |
| 8)  | $\sin 150^\circ = \cos (-60^\circ) = \frac{1}{2}$                         | <del>(both)</del>   |     | <u>T</u> |
| 9)  | $\tan 9\pi = \cos \frac{5\pi}{2} = 0$                                     | <del>(both)</del>   |     | <u>T</u> |
| 10) | $\cos \left(\frac{3\pi}{4}\right) = \cos \left(\frac{15\pi}{4}\right)$    | (1 <sup>st</sup> angle in 2 <sup>nd</sup> quadrant, 2 <sup>nd</sup> angle in 4 <sup>th</sup> - )                        | 10) | <u>F</u> |
| 11) | $\sin \left(-2\frac{\pi}{3}\right) = \cos \left(\frac{\pi}{6}\right)$     | ( $-2\frac{\pi}{3}$ is in the 3 <sup>rd</sup> quadrant so $\sin(-2\frac{\pi}{3})$ is negative)                          |     | <u>F</u> |
| 12) | $\tan \left(-11\frac{\pi}{6}\right) = \tan \left(-17\frac{\pi}{6}\right)$ | $\tan \left(-17\frac{\pi}{6}\right) = \tan \left(-\frac{11\pi}{6} - \pi\right)$<br>$\tan \left(-\frac{11\pi}{6}\right)$ |     | <u>T</u> |
| 13) | $\cos \left(\frac{3\pi}{2}\right) = \sin 3\pi$                            | (both 0)  | 13) | <u>T</u> |
| 14) | $\sin \left(\frac{5\pi}{6}\right) = \cos \left(\frac{2\pi}{3}\right)$     | (first = $+\frac{1}{2}$ , the other = $-\frac{1}{2}$ )  |     | <u>F</u> |

15.) $\tan \frac{5\pi}{3} = -\tan \left( \frac{\pi}{3} \right)$	$\left( \tan \left( \frac{5\pi}{3} \right) = \tan \left( 2\pi - \frac{\pi}{3} \right) = \tan \left( -\frac{\pi}{3} \right) = -\tan \left( \frac{\pi}{3} \right) \right)$	T
16.) $\sin(8\pi) = \tan(8\pi)$ (both 0)		T
17.) $\sin \left( \frac{7\pi}{4} \right) = \cos \left( -\frac{\pi}{4} \right)$	$\left( \begin{array}{l} \sin \left( \frac{7\pi}{4} \right) = -\frac{\sqrt{2}}{2} \\ \cos \left( -\frac{\pi}{4} \right) = \frac{\sqrt{2}}{2} \end{array} \right)$	F
18.) $\sec 0 = \csc \pi$ ( $\sec 0 = 1$ , $\csc \pi$ undefined)		F
19.) $\cot 480^\circ = \tan 930^\circ$	$\left( \begin{array}{l} \cot(480^\circ) = \cot(360^\circ + 120^\circ) = \cot(120^\circ) \\ \tan(930^\circ) = \tan(30^\circ + 5 \cdot 180^\circ) = \tan(30^\circ) \end{array} \right)$ but $\cot(120^\circ)$ is negative while $\tan(30^\circ)$ is positive	F
20.) $\cos 240^\circ = \sin 690^\circ$		T

$\cos(240^\circ) = \cos(180^\circ + 60^\circ) = -\cos 60^\circ = -\frac{1}{2}$   
 $\sin(690^\circ) = \sin(2 \cdot 360^\circ - 30^\circ) = \sin(-30^\circ) = -\sin(30^\circ) = -\frac{1}{2}$

EXTRA: (5 each)

Find 2 values  $\theta$ ,  $0 \leq \theta < 2\pi$  where

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

$\theta = \frac{5\pi}{6}$   
reference angle  $\frac{\pi}{6}$

$\theta_1 = \frac{5\pi}{6} + \pi = \frac{11\pi}{6}$   
 and  $\theta_2 = 2\pi - \frac{\pi}{6} = \frac{11\pi}{6}$

2)  $\tan \theta = -1$

$\theta_1 = \frac{3\pi}{4}$  and  $\theta_2 = 2\pi - \frac{\pi}{4} = \frac{7\pi}{4}$