Pre-Calculus **HW#4.4-2** **Name:** Key

1. Convert $\frac{9\pi}{5}$ to degrees.

$\frac{9\pi}{5} \cdot \frac{180^\circ}{\pi} = 324^\circ$

2. **One degree is how many radians?**

(round to the nearest thousandth)

$1^\circ \cdot \frac{\pi}{180^\circ} = .017$

3. Find the complement of $\frac{\pi}{8}$

$\frac{\pi}{2} - \frac{\pi}{8} = \frac{3\pi}{8}$

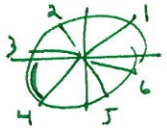
4. What is the reference angle for $\frac{-16\pi}{6}$? $\frac{-8\pi}{3}$

$\frac{\pi}{3}$

5. What is the reference angle for 740°?

20°

*6. **What is the reference angle for 4.2?**
(round to the nearest thousandth)



$4.2 - \pi = 1.058$

7. State the quadrant in which θ lies if $\cos\theta > 0$ and $\tan\theta < 0$.

IV

8. What ordered pair corresponds to $\frac{8\pi}{6}$ on the unit circle?

$\frac{4\pi}{3}$

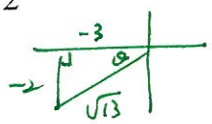
$\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$

9. Find the following: a) $\tan\frac{3\pi}{2}$ b) $\sec\frac{5\pi}{3}$ c) $\sin\frac{-21\pi}{4}$

a) und b) 2 c) $\frac{\sqrt{2}}{2}$

10. If $\tan\theta = \frac{2}{3}$ and $\pi < \theta < \frac{3\pi}{2}$, find $\cos\theta$.

III



$\cos\theta = \frac{-3\sqrt{13}}{13}$

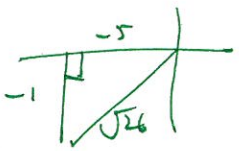
11. If $\cos t = -\frac{\sqrt{2}}{2}$ and $\pi < t < \frac{3\pi}{2}$, find $\sin t$.

III

$\sin t = -\frac{\sqrt{2}}{2}$

12. If $\tan\theta = \frac{1}{5}$ and $\pi < \theta < \frac{3\pi}{2}$, find $\cos\theta$.

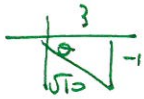
III



$\cos\theta = \frac{-5\sqrt{26}}{26}$

13. Find $\sin\theta$ if $\cot\theta = -3$ and $\cos\theta > 0$.

IV



$\sin\theta = -\frac{\sqrt{10}}{10}$

14. Find all possible values of t ($0 \le t \le 2\pi$).

a) $\cos t = \frac{\sqrt{3}}{2}$ $\frac{\pi}{6}, \frac{11\pi}{6}$

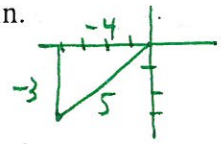
b) $\cot t = -1$ $\frac{3\pi}{4}, \frac{7\pi}{4}$

c) $\sin t = -\frac{1}{2}$ $\frac{7\pi}{6}, \frac{11\pi}{6}$

d) $\tan t = \sqrt{3}$ $\frac{\pi}{3}, \frac{4\pi}{3}$

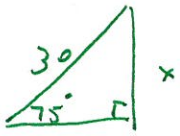
e) $\cos t = -\frac{\sqrt{3}}{2}$ $\frac{5\pi}{6}, \frac{7\pi}{6}$

15. Point (-4, -3) is on the terminal side of an angle in standard position. Find the exact value of sin.



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

16. A 30 foot ladder leaning against the side of a house makes a 75° angle with the ground. How far up the side of the house does the ladder reach?



$\sin 75^\circ = \frac{x}{30}$

$x = 28.98$ ft

17. Find 2 values of θ where $0 \le \theta < 360°$.

a) **$\sin\theta = .5432$** 32.9°, 147.1°

b) **$\sin\theta = -.7132$** 314.5°, 225.5°

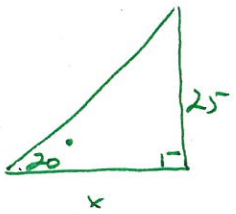
c) **$\cos\theta = 1.213$** undef

d) **$\cos\theta = .2416$** 76°, 284°

18. Find csc(-3.234) and sec(-1.234)

10.84 3.03

19. The angle of elevation from a point on the ground to the top of a tower is 20°. If the tower is 25 feet tall, what is the distance from the point to the tower?



$\tan 20^\circ = \frac{25}{x}$

$x = 68.69$ ft