Key

Pre-Calculus **Chapter 4 Review**

Give the exact value for the following:

1. $\sin\frac{17\pi}{3}$ $-\frac{\sqrt{3}}{2}$

2. $\cos\left(-\frac{81\pi}{4}\right)$ $\frac{\sqrt{2}}{2}$

3. $\tan\frac{5\pi}{3}$ $-\sqrt{3}$

4. $\sec\left(-\frac{2\pi}{3}\right)$ -2

5. $\csc 7\pi$ UND.

6. $\cot 0$ UND.

7. $\sin^{-1}\left(-\frac{1}{2}\right)$ $-\frac{\pi}{6}$

8. $\cos^{-1}\left(\frac{\sqrt{3}}{2}\right)$ $\frac{\pi}{6}$

9. $\tan^{-1}\left(\frac{\sqrt{3}}{3}\right)$ $\frac{\pi}{6}$

10. $\sin^{-1}(1)$ $\frac{\pi}{2}$

11. $\cos^{-1}(3)$ UND.

12. $\tan^{-1}(-1)$ $-\frac{\pi}{4}$

13. What is the supplement and complement of $\frac{2\pi}{13}$?

$\frac{\pi}{2}-\frac{2\pi}{13}=\frac{13\pi}{26}-\frac{4\pi}{26}$ $\pi-\frac{2\pi}{13}=\frac{13\pi}{13}-\frac{2\pi}{13}$

Complement: $\frac{9\pi}{26}$

Supplement: $\frac{11\pi}{13}$

14. Find two coterminal angles of $\frac{2\pi}{3}$.

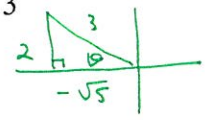
$-\frac{4\pi}{3}, \frac{8\pi}{3}$

15. Convert $\frac{3\pi}{5}$ to degrees.

$\frac{3\pi}{5}\cdot\frac{180}{\pi}=108°$

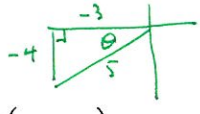
16. What quadrant is θ in if $\cos\theta<0$ and $\cot\theta<0$? II

17. If $\sin\theta=\frac{2}{3}$ in quadrant II, what is $\tan\theta$?



$\tan\theta=\frac{-2\sqrt{5}}{5}$

18. The point (-3,-4) is on the terminal side of an angle in standard position. Find $\sin\theta$.



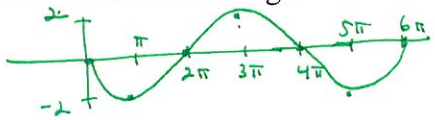
$\sin\theta=\frac{-4}{5}$

19. Graph $y=2\sin\left(\frac{x}{2}-\pi\right)$. Give the domain and range.

$(2\pi, 0)$

per $=4\pi$

Amp $=2$



D: $(-\infty,\infty)$

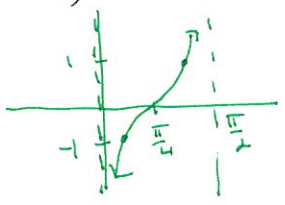
R: $[-2,2]$

20. Graph $y=\tan\left(2x-\frac{\pi}{2}\right)$. Give domain and range.

$(\frac{\pi}{4}, 0)$

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

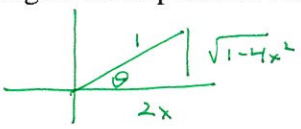
Amp $=1$



D: $x\neq\frac{\pi}{2}n$

R: $(-\infty,\infty)$

21. Write an algebraic expression for $\sin(\cos^{-1}(2x))$.



$\sin\theta = \sqrt{1-4x^2}$

22. Find 2 values of θ for $0<\theta<2\pi$: $\frac{5\pi}{6}, \frac{7\pi}{6}$

a) $\sec\theta = -\frac{2\sqrt{3}}{3}$ $\quad \cos\theta = \frac{-3}{2\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = -\frac{\sqrt{3}}{2}$

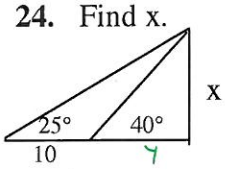
$\frac{2\pi}{3}, \frac{5\pi}{3}$

b) $\cot\theta = -\frac{\sqrt{3}}{3}$ $\quad \tan\theta = \frac{-3}{3\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = -\sqrt{3}$

23. Use your calculator to find the following:

$\sec 42°$	$\sin 3.6$	$\cot 17°$
1.35	−.44	3.27

24. Find x.



$\tan 40° = \frac{x}{y}$

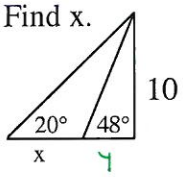
$\tan 25° = \frac{x}{y+10}$

$\tan 40° y = \tan 25°(y+10)$

$y = 12.51$

$x = 10.5$

25. Find x.



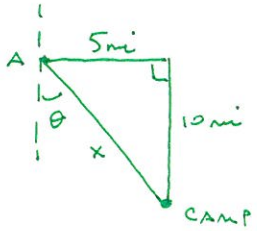
$\tan 48° = \frac{10}{y}$

$y = 9$

$\tan 20° = \frac{10}{x+9}$

$x = 18.47$

26. You start at camp and walk 10 miles due north, then change course and walk due west for 5 miles. What bearing should you take to return to camp? How far is it?



$\tan A = \frac{10}{5}$

$A = \tan^{-1}(10/5)$

$= 63.4° \rightarrow$

S 26.6° E

$5^2 + 10^2 = x^2$

11.2 miles $= x$