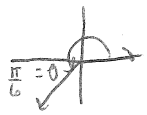
AP Calculus AB
Trig Review Worksheet

Name Key

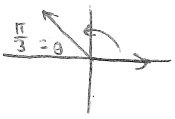
Without a calculator, evaluate each trig function at the given angle:

1. $\cos\frac{7\pi}{6}$



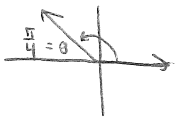
$-\frac{\sqrt{3}}{2}$

2. $\csc\frac{2\pi}{3}$



$\frac{2\sqrt{3}}{3}$

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

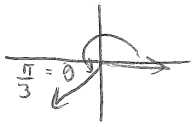


-1

4. $\sin\frac{3\pi}{2}$

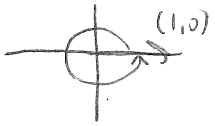
-1

5. $\cos 240^\circ$



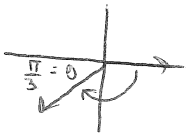
$-\frac{1}{2}$

6. $\cot 2\pi$



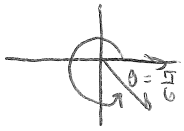
$\frac{1}{0}$ = undefined

7. $\cos\frac{-2\pi}{3}$



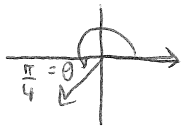
$-\frac{1}{2}$

8. $\sin\frac{11\pi}{6}$



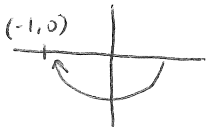
$-\frac{1}{2}$

9. $\sec\frac{5\pi}{4}$



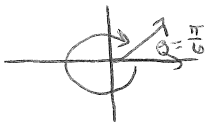
$-\sqrt{2}$

10. $\tan(-\pi)$



$\frac{0}{-1} = 0$

11. $\csc(-330^\circ)$



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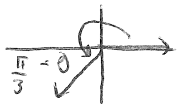
12. $\cot\frac{4\pi}{3}$



$\frac{\sqrt{3}}{3}$

Without a calculator, solve for each angle(s) that makes the given equation true on the interval $[0, 2\pi]$.

13. $\sin\theta = \frac{\sqrt{2}}{2}$

$\theta = \frac{\pi}{4}, \frac{3\pi}{4}$

14. $\cos\theta = -\frac{\sqrt{3}}{2}$

$\theta = \frac{5\pi}{6}, \frac{7\pi}{6}$

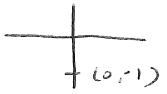
15. $\sec\theta = \sqrt{2}$

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

$\theta = \frac{\pi}{4}, \frac{7\pi}{4}$

16. $\csc\theta = -1$

$\sin\theta = -1$



$\theta = \frac{3\pi}{2}$

17. $\tan\theta = -\frac{\sqrt{3}}{3}$

$\theta = \frac{5\pi}{6}, \frac{11\pi}{6}$

18. $\cot\theta = \varnothing$

$\tan\theta = 0$

$\theta = 0, \pi, 2\pi$

Use a calculator to find each value: (round to 3 decimal places if necessary)

19. sin 81°

.988

20. tan - 135°

1

21. cos $\frac{4\pi}{9}$

.174

22. sec –270°

undefined

23. cot $\frac{3\pi}{4}$

-1

24. cot 90°

0

Verify each of the following identities:

25. $\cos^3\theta + \sin^2\theta\cos\theta = \cos\theta$

$\cos\theta(\cos^2\theta + \sin^2\theta) = \cos\theta$

$\cos\theta(1) = \cos\theta$

$\cos\theta = \cos\theta$

26. $\dfrac{\sec^2\theta - 1}{\tan\theta} = \tan\theta$

$\dfrac{\tan^2\theta}{\tan\theta} = \tan\theta$

$\tan\theta = \tan\theta$

27 $(1 + \tan\theta)^2 = \sec^2\theta + 2\tan\theta$

$(1+\tan\theta)(1+\tan\theta) = \sec^2\theta + 2\tan\theta$

$1 + 2\tan\theta + \tan^2\theta = \sec^2\theta + 2\tan\theta$

$\sec^2\theta + 2\tan\theta = \sec^2\theta + 2\tan\theta$

28. $\dfrac{1 - 2\csc\theta}{\cot\theta} = \tan\theta - 2\sec\theta$

$\dfrac{1}{\cot\theta} - \dfrac{2\csc\theta}{\cot\theta} = \tan\theta - 2\sec\theta$

$\tan\theta - \dfrac{2}{\sin\theta}\cdot\dfrac{\sin\theta}{\cos\theta} = \tan\theta - 2\sec\theta$

$\tan\theta - \dfrac{2}{\cos\theta} = \tan\theta - 2\sec\theta$

$\tan\theta - 2\sec\theta = \tan\theta - 2\sec\theta$

29. $\csc^4\theta - \cot^4\theta = 2\csc^2\theta - 1$

$(\csc^2\theta + \cot^2\theta)(\csc^2\theta - \cot^2\theta) = 2\csc^2\theta - 1$

$(\csc^2\theta + \cot^2\theta)(1) = 2\csc^2\theta - 1$

$\csc^2\theta + (\csc^2\theta - 1) = 2\csc^2\theta - 1$

$2\csc^2\theta - 1 = 2\csc^2\theta - 1$

30. $\dfrac{1 + \sec\theta}{\tan\theta + \sin\theta} = \csc\theta$

$\dfrac{\frac{1}{\cos\theta}(\cos\theta + 1)}{\frac{1}{\cos\theta}(\sin\theta + \sin\theta\cos\theta)} = \csc\theta$

$\dfrac{\cos\theta + 1}{\sin\theta(1 + \cos\theta)} = \csc\theta$

$\dfrac{1}{\sin\theta} = \csc\theta$

$\csc\theta = \csc\theta$