

Trig worksheet # 1 (The Unit Circle)

Name: Key

Part II: Evaluate using the unit circle. Show work when appropriate on notebook paper. No decimals.

1. $\cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2}$

2. $\sin \frac{\pi}{4} = \frac{\sqrt{2}}{2}$

3. $\cos \frac{3\pi}{4} = -\frac{\sqrt{2}}{2}$

4. $\tan 2\pi = 0$

5. $\sin \pi = 0$

6. $\tan \pi = 0$

7. $\sin \frac{7\pi}{6} = -\frac{1}{2}$

8. $\cos \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$

9. $\tan \frac{\pi}{4} = 1$

10. $\cos \frac{\pi}{2} = 0$

11. $\sin \frac{4\pi}{3} = -\frac{\sqrt{3}}{2}$

12. $\csc \frac{5\pi}{6} = \frac{1}{\sin \frac{5\pi}{6}} = \frac{1}{1/2} = 2$

13. $\cos \frac{9\pi}{4} = \frac{\sqrt{2}}{2}$

14. $\sec \frac{2\pi}{3} = \frac{1}{\cos \frac{2\pi}{3}} = \frac{1}{-1/2} = -2$

15. $\tan \frac{-4\pi}{3} = \frac{\sin \frac{-4\pi}{3}}{\cos \frac{-4\pi}{3}} = \frac{-\sqrt{3}/2}{-1/2} = \sqrt{3}$

$\frac{9\pi}{4} - \frac{8\pi}{4} = \frac{\pi}{4} \cos \frac{\pi}{4}$

16. $\cot 4\pi = \frac{1}{\tan 4\pi} = \frac{1}{0} = \text{und}$

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

18. $\sin \frac{13\pi}{6} = \sin \frac{-\pi}{6} = -\frac{1}{2}$

19. $\sec \frac{5\pi}{4} = \frac{1}{\cos \frac{5\pi}{4}} = \frac{1}{-\sqrt{2}/2} = -\frac{2}{\sqrt{2}} = -\sqrt{2}$

20. $\cot \frac{3\pi}{2} = \frac{\cos \frac{3\pi}{2}}{\sin \frac{3\pi}{2}} = \frac{0}{-1} = 0$

21. $\csc \frac{7\pi}{3} = \frac{1}{\sin \frac{7\pi}{3}} = \frac{1}{\sin \frac{\pi}{3}} = \frac{1}{\sqrt{3}/2} = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$

22. $\tan 3\pi = \frac{\sin 3\pi}{\cos 3\pi} = \frac{0}{-1} = 0$

23. $\sec \frac{-3\pi}{4} = \frac{1}{\cos \frac{-3\pi}{4}} = \frac{1}{-\sqrt{2}/2} = -\frac{2}{\sqrt{2}} = -\sqrt{2}$

24. $\cos \frac{8\pi}{3} = \cos \frac{2\pi}{3} = -\frac{1}{2}$

$$25. \sin \frac{-4\pi}{3} \frac{\sqrt{3}}{2}$$

$$\sin \frac{2\pi}{2}$$

$$26. \cot \frac{\pi}{6} \frac{\sqrt{3}}{2}$$

$$\frac{\cos}{\sin} = \frac{\sqrt{3}/2}{1/2} = \frac{\sqrt{3}}{2} \cdot 2$$

$$27. \csc 7\pi \text{ und.}$$

$$\frac{1}{\sin 7\pi} = \frac{1}{0}$$

$$28. \tan \frac{-\pi}{2} \text{ und.}$$

$$\tan \frac{3\pi}{2} = \frac{-1}{0}$$

$$29. \sin \frac{15\pi}{4} = \frac{-\sqrt{2}}{2}$$

$$\frac{15\pi - 8\pi}{4} = \frac{7\pi}{4}$$

$$30. \sec \frac{\pi}{4} \frac{\sqrt{2}}{2}$$

$$\frac{1}{\cos \frac{2\pi}{4}} = \frac{1}{\frac{1}{\sqrt{2}}} = \frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{2}$$

$$31. \cos 5\pi = -1$$

$$\cos \pi$$

$$32. \cot \frac{-7\pi}{6} = -\sqrt{3}$$

$$\frac{\cos \frac{5\pi}{6}}{\sin \frac{5\pi}{6}} = \frac{-\sqrt{3}/2}{1/2} = -\sqrt{3} \cdot 2$$

$$33. \tan \frac{-\pi}{3} = -\sqrt{3}$$

$$\tan \frac{5\pi}{3} = \frac{\sin}{\cos} = \frac{-\sqrt{3}/2}{1/2} = -\sqrt{3} \cdot 2$$

$$34. \csc \frac{11\pi}{6} = -2$$

$$\frac{1}{\sin \frac{11\pi}{6}} = \frac{1}{-1/2}$$

$$35. \tan \frac{-3\pi}{2} \text{ und.}$$

$$\tan \frac{\pi}{2} = \frac{\sin}{\cos} = \frac{1}{0}$$

$$36. \sec \frac{\pi}{6} = \frac{2\sqrt{3}}{3}$$

$$\frac{1}{\cos \frac{\pi}{6}} = \frac{1}{\sqrt{3}/2} = \frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

$$37. \sin \frac{\pi}{2} = 1$$

$$38. \cos \frac{13\pi}{3} = \frac{1}{2}$$

$$\frac{13\pi - 12\pi}{3} = \frac{\pi}{3}$$

$$39. \cot \frac{-\pi}{6} = -\sqrt{3}$$

$$\cot \frac{11\pi}{6} = \frac{\cos}{\sin} = \frac{\sqrt{3}/2}{-1/2} = \frac{\sqrt{3}}{2} \cdot \frac{-2}{1}$$

$$40. \tan \frac{4\pi}{3} = \sqrt{3}$$

$$\frac{\sin}{\cos} = \frac{-\sqrt{3}/2}{-1/2} = \frac{-\sqrt{3}}{2} \cdot \frac{-2}{1}$$

$$41. \csc \frac{17\pi}{6} = 2$$

$$\frac{17\pi - 12\pi}{6} = \frac{5\pi}{6} \quad \frac{1}{\sin \frac{5\pi}{6}} = \frac{1}{1/2} \quad \sin \pi$$

$$42. \sin 11\pi = 0$$

$$43. \cos \frac{-2\pi}{3} = -\frac{1}{2}$$

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

$$44. \sin \frac{-5\pi}{3} = \frac{\sqrt{3}}{2}$$

$$\sin \frac{\pi}{3}$$

$$45. \tan \frac{10\pi}{3} = \sqrt{3}$$

$$\frac{10\pi - 6\pi}{3} = \frac{4\pi}{3}$$

$$\frac{\sin}{\cos} = \frac{-\sqrt{3}/2}{-1/2} = \frac{-\sqrt{3}}{2} \cdot \frac{-2}{1}$$