

Pre-Calculus
Exact Values

Name _____

Find the exact value of each expression. Do not use a calculator.

1. $\tan \frac{\pi}{4} - \sin \frac{\pi}{6}$

2. $\cos \frac{\pi}{3} + \sin \frac{\pi}{2}$

3. $3\sin 45^\circ - 4\tan \frac{\pi}{6}$

4. $4\cos 60^\circ + 3\tan \frac{\pi}{3}$

5. $6\cos \frac{3\pi}{4} + 2\tan \left(-\frac{\pi}{3}\right)$

6. $3\sin \frac{2\pi}{3} - 4\cos \frac{5\pi}{2}$

7. $\sec \left(-\frac{\pi}{3}\right) - \cot \left(-\frac{5\pi}{4}\right)$

8. $4\csc \frac{3\pi}{4} - \cot \left(-\frac{\pi}{4}\right)$

10. $\tan \pi + \sin \pi$

12. $\cos \frac{\pi}{2} - \csc \left(-\frac{\pi}{2}\right)$

13. $\cos 180^\circ - \tan(-45^\circ)$

14. $\sin 270^\circ + \cos(-180^\circ)$

15. $4 \cos 60^\circ - 2 \sin 45^\circ$

16. $2 \sin 45^\circ + 4 \cos 30^\circ$

17. $6 \tan 45^\circ - 8 \cos 60^\circ$

18. $\sin 30^\circ \cdot \tan 60^\circ$

19. $\sec \frac{\pi}{4} + 2 \csc \frac{\pi}{3}$

20. $\tan \frac{\pi}{4} + \cot \frac{\pi}{4}$

Find the exact value of each of the remaining trigonometric functions. (Draw your triangle)

21. $\cos \theta = -\frac{3}{5}, \sin \theta < 0$

22. $\csc \theta = -\frac{5}{3}, \cot \theta < 0$

23. $\sec \theta = -\frac{13}{5}, \tan \theta < 0$

24. $\sin \theta = -\frac{12}{13}, \cot \theta > 0$

25. $\sec \theta = 3, \csc \theta > 0$

26. $\tan \theta = -\frac{2}{3}, \sin \theta > 0$

27. $\csc \theta = -4, \pi < \theta < \frac{3\pi}{2}$

28. $\cot \theta = -2, \frac{\pi}{2} < \theta < \pi$