Name_____ Date_____ Period_____

EVALUATING INVERSE TRIG FUNCTIONS WORKSHEET

Inverse sine: $\arcsin(x)$ or $\sin^{-1} x$, is the number or angle y, $-\frac{\pi}{2} \le y \le \frac{\pi}{2}$, whose sine is x.
Inverse cosine: $\arccos(x)$ or $\cos^{-1} x$, is the number or angle y, $0 \le y \le \pi$, whose cosine is x.
Inverse tangent: $\arctan(x)$ or $\tan^{-1} x$, is the number or angle y, $-\frac{\pi}{2} < y < \frac{\pi}{2}$, whose tangent is x.

Directions: Write the *exact* trigonometric value of the following problems.

1. $\cos^{-1}\frac{\sqrt{3}}{2}$
2. $\sin^{-1}\frac{\sqrt{2}}{2}$
3. $\arcsin(-1)$
4. $\cos^{-1}(-1)$
5. $\arctan(1)$
6. $\tan^{-1}(-1)$
7. $\arcsin\left(-\frac{\sqrt{2}}{2}\right)$
8. $\tan^{-1}\sqrt{3}$
9. $\arccos\frac{1}{2}$
10. $\tan^{-1}\left(-\frac{\sqrt{3}}{3}\right)$
11. $\arccos\left(-\frac{\sqrt{2}}{2}\right)$
12. $\cos^{-1} 0$
13. $\tan^{-1}(0)$
14. $\cot^{-1} 0$
15. $\cos^{-1} 2$

16. $\cos\left(\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)\right)$

17. $\sin\left(\cos^{-1}\left(-\frac{1}{2}\right)\right)$

18. $\tan\left(\sin^{-1}0\right)$

19. $\cot\left(\cos^{-1}0\right)$

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

21. $\cos^{-1}\left(\sin\left(\frac{5\pi}{4}\right)\right)$

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

23. $\sin^{-1}\left(\cos\left(\frac{5\pi}{3}\right)\right)$

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

25. $\tan^{-1}\left(\cos\left(\frac{\pi}{2}\right)\right)$

26. $\sin^{-1}\left(\sin\left(\frac{3\pi}{4}\right)\right)$

27. $\cos^{-1}\left(\sin\left(-\frac{\pi}{3}\right)\right)$

BONUS:

28. $\cos\left(\sin^{-1}\left(\frac{8}{17}\right)\right)$

29. $\sin\left(\cos^{-1}\left(\frac{5}{13}\right)\right)$

30. $\tan\left(\cos^{-1}\left(\frac{3}{5}\right)\right)$