More Practice with Trigonometry

Name _____
Date _____ Period_____

Verify each of the following.

1. $\dfrac{\sec^2 x - 1}{\cot x} = \tan^3 x$

2. $(1+\cos\theta)(\csc\theta - \cot\theta) = \sin\theta$

3. $\dfrac{\tan(-\alpha)\cos(-\alpha)}{\sin(-\alpha)} = 1$

4. $\dfrac{\sec x}{\tan x} = \csc x$

5. $\csc x + \csc x \cot^2 x = \csc^3 x$

6. $\dfrac{\sin x}{1+\cos x} + \dfrac{1+\cos x}{\sin x} = 2\csc x$

Use the Unit Circle to find the exact value, if possible. (NON-CALCULATOR)

7. $\arcsin\left(-\frac{\sqrt{3}}{2}\right) =$ _____

8. $\csc(-45^\circ) =$ _____

9. $\tan^{-1}(\sqrt{3}) =$ _____

10. $\tan\left(\frac{5\pi}{3}\right) =$ _____

11. $\arcsin(0) =$ _____

12. $\arccos\left(\cos\frac{5\pi}{3}\right) =$ _____

13. $\sin^{-1}(0) =$ _____

14. $\sin\left(-\frac{2\pi}{3}\right) =$ _____

15. $\tan(\pi) =$ _____

16. $\sin^{-1}\left(\cos\frac{\pi}{2}\right) =$ _____

17. $\sec\left(\frac{4\pi}{3}\right) =$ _____

18. $\csc\left(-\frac{5\pi}{4}\right) =$ _____

19. $\cos\left(\arccos\left(-\frac{\sqrt{2}}{2}\right)-\frac{\pi}{2}\right) =$ _____

20. $\sin\left[\tan^{-1}(1)-\sin^{-1}(1)\right] =$ _____

Factor each expression and simplify.

21. $\tan x\cos^2 x-\cos^3 x =$ _____

22. $8\sin^2 x-2\sin x-3 =$ _____

23. $\sec^3 x-3\sec^2 x+2\sec x-6 =$ _____

24. $\frac{3\sin^2 x-13\sin x+4}{9\sin^2 x-1} =$ _____