Determine $sin(2x), cos(2x), tan(2x)$ for the following.

1. $tan(x) = \frac{4}{3}$ x is in Quadrant 1

2. $csc(x) = -2$ and x is in Quadrant 3

3. $cos(x) = -\frac{4}{5}$ and $tan(x) > 0$

Determine $sin\left(\frac{x}{2}\right), cos\left(\frac{x}{2}\right), tan\left(\frac{x}{2}\right)$ for the following.

4. $sin(x) = -\frac{3}{5}$ and x is in Quadrant 3.

5. $tan(x) = 1$ and $0^o \le x \le 90^o$

6. $cot(x) = 5$ and $180^o \le x \le 270^o$

Use formulas for lowering powers and write as a single power of cosines.

7. $sin^4(x)$

8. $cos^2(x)sin^4(x)$

Evaluate the following without a calculator.

9. $cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ 10. $sin^{-1}\left(\frac{\sqrt{2}}{2}\right)$ 11. $tan^{-1}\left(-\frac{\sqrt{3}}{3}\right)$

12. $tan^{-1}\left[tan\left(\frac{\pi}{6}\right)\right]$ 13. $cos\left[sin^{-1}\left(\frac{\sqrt{3}}{2}\right)\right]$ 14. $tan^{-1}\left[2sin\left(\frac{\pi}{3}\right)\right]$

Solve the following equations for x over the interval $0 \le x < 2\pi$

15. $tan\left(\frac{x}{2}\right) + 1 = 0$

16. $3csc^2(x) = 4$

17. $2sin(3x) + 1 = 0$

18. $sec(x) - 2 = 0$

19. $1 - cos^2(x) = 1$

20. $2sin^2(x) - \sin(x) - 1 = 0$

Write your solutions in sequence form for the answers found above.

21. Problem 15

22. Problem 16

23. Problem 17

24. Problem 18.

25. Problem 19.

26. Problem. 20.

Convert the polar coordinates to rectangular coordinates.

27. $\left(\sqrt{3}, \frac{-5\pi}{3}\right)$ 28. $\left(-5, -\frac{\pi}{6}\right)$

Convert the rectangular coordinates to polar coordinates.

29. $\left(-\sqrt{6}, \sqrt{2}\right)$ 30. $(1, -2)$

Answer Sheet

1		16	
2		17	
3		18	
4		19	
5		20	
6		21	
7		22	
8		23	
9		24	
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