Precalculus Final Exam Review: 4th Quarter

The Precalculus midterm exam is composed of 40 questions, 32 of which are multiple choice. You may use your calculator for the entire exam.

Evaluate the following to the nearest thousandth:

1. $\csc 136°$
2. $\sec 28°$
3. $\cot 230°$
4. $\arcsin 0.2518$

Solve for θ in $[0, 2\pi)$:

5. $\sin\theta = \frac{1}{2}$
6. $\tan\theta = -\sqrt{3}$
7. $\csc\theta = -1$
8. $\cos\theta = \frac{\sqrt{2}}{2}$

Solve for all θ:

9. $\cos\theta = -\frac{\sqrt{3}}{2}$
10. $\cot\theta = -1$
11. $\sec\theta = \frac{2\sqrt{3}}{3}$
12. $\sin\theta = -\frac{\sqrt{3}}{2}$

Solve for θ:

13. $\theta = \cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$
14. $\theta = \arctan(-1)$
15. $\theta = \sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$
16. $\theta = \arcsin 0$
17. $\theta = \cos^{-1}(0)$
18. $\theta = \tan^{-1}\left(-\frac{\sqrt{3}}{3}\right)$

Find the exact value (no decimals) or expression for the following:

19. $\sin\left(\arccos\left(-\frac{5}{13}\right)\right)$
20. $\sec\left(\tan^{-1}\left(\frac{b}{c}\right)\right)$
21. $\tan\left(\arcsin\left(-\frac{6}{7}\right)\right)$

Solve for x in $[0, 2\pi)$:

22. $2\cos^2 x - \cos x = 0$
23. $\tan^2 x - 3 = 0$
24. $\tan^2(2x) = \tan(2x)$

Solve for x in $[-2\pi, 2\pi]$:

25. $\sqrt{3}\tan\left(\frac{2x}{3}\right) + 1 = 0$
26. $\cos(2x) - \sin x + 2 = 0$

Solve for all possible values of x

27. $4\sin^2 x - 8\cos x + 1 = 0$