Pre-Calculus Unit G (Chapter 5) Review sheet Name _____

1. Find the exact value of cos 15°.

F $\frac{-\sqrt{2}-\sqrt{6}}{4}$ **G** $\frac{\sqrt{6}-\sqrt{2}}{4}$ **H** $\frac{\sqrt{6}+\sqrt{2}}{4}$ **J** $\frac{\sqrt{2}-\sqrt{6}}{4}$

2. Solve $\sin x - \sin^2 x = 0$ on the interval $[0, 2\pi)$.

A $0, \pi, \frac{\pi}{2}$ **C** $\frac{\pi}{2}, \frac{3\pi}{2}$
B $\frac{\pi}{2}$ **D** $\pi, \frac{\pi}{4}$

3. Find the exact value of $\cos \frac{\pi}{8}$.

F $-\frac{\sqrt{2-\sqrt{2}}}{2}$ **G** $-\frac{\sqrt{2+\sqrt{2}}}{2}$ **H** $\frac{\sqrt{2-\sqrt{2}}}{2}$ **J** $\frac{\sqrt{2+\sqrt{2}}}{2}$

4. Simplify $\frac{\sec\theta \tan\theta}{\sin\theta}$.

A $\sec^2\theta$ **B** $\cot\theta$ **C** $\tan^2\theta$ **D** $\cos^2\theta$

5. If $\csc\theta = -\frac{5}{4}$ on the interval $(270^\circ, 360°)$, find $\tan\theta$.

F $-\frac{4}{3}$ **G** $\frac{3}{4}$ **H** $\frac{4}{3}$ **J** $-\frac{4}{5}$

6. Simplify $\frac{\cos x}{\sec x - 1} + \frac{\cos x}{\sec x + 1}$.

F $2\tan^2 x$ **G** $2\cos x$ **H** $2\cos^2 x - 1$ **J** $2\cot^2 x$

7. If $\csc\theta = -\frac{5}{3}$ on the interval $\left(\pi, \frac{3\pi}{2}\right)$, find the exact value of $\tan 2\theta$.

A $\frac{24}{25}$ **B** $-\frac{7}{25}$ **C** $\frac{24}{7}$ **D** $\frac{7}{25}$

8. Solve $2 \sin x - \sqrt{3} = 0$ on the interval $[0, 2\pi)$.

A $\frac{\pi}{6}, \frac{5\pi}{6}$ **B** $\frac{\pi}{3}, \frac{2\pi}{3}$ **C** $\frac{\pi}{3}, \frac{5\pi}{3}$ **D** $\frac{7\pi}{6}, \frac{11\pi}{6}$

9. Find the exact value of cos 67.5°.

F $-\frac{\sqrt{2-\sqrt{2}}}{2}$ **G** $-\frac{\sqrt{2+\sqrt{2}}}{2}$ **H** $\frac{\sqrt{2-\sqrt{2}}}{2}$ **J** $\frac{\sqrt{2+\sqrt{2}}}{2}$

10. Verify: $\cos\theta \tan^2\theta + \cos\theta = \sec\theta$

11. Simplify $\csc\theta - \cot\theta \cos\theta$.

12. Find the exact value of cos 255°.

13. Find the exact value of $\dfrac{\tan 25^\circ + \tan 35^\circ}{1 - \tan 25^\circ \tan 35^\circ}$

14. Solve on the interval $[0, 2\pi)$: $\cos 2\theta + 2\cos^2\theta = 0$

15. Solve on the interval [0, 2π): $\cos\theta\sin 2\theta = 0$

16. Verify: $\frac{1-\sin^2\theta}{1-\cos^2\theta} = cot^2\theta$.

17. If $\cos\theta = \frac{4}{5}$ on the interval $\left(\frac{3\pi}{2}, 2\pi\right)$, find the exact value of tan 2θ.

18. Solve $\tan x - \sqrt{3} = 0$ on the interval [0, 2π).

19. Find the exact value of $\cos\frac{7\pi}{12}$.

For 20-22, Find all solutions on the interval [0, 2π).

20. $\sin^2 x - 2\sin x = 3$

21. $\sin^2 x - \sin x + 1 = \cos^2 x$

22. $4\cos^2 x - 1 = 0$

For 22-25, Find the exact value of each trigonometric expression.

23. $\cos \frac{5\pi}{12}$

24. $\sin (195°)$

25. $\tan 345°$

26. $\tan\left(\frac{23\pi}{12}\right)$