

I. Multiple Choice

- _____ 1. $\sin^{-1}(-\frac{1}{2}) =$
 (A) -60° (B) -30° (C) 30° (D) 150° (E) 330°
- _____ 2. What is the range of $y = \text{ArcCos}(x)$?
 (A) $0^\circ \leq y \leq 180^\circ$ (B) $-90^\circ \leq y \leq 90^\circ$ (C) $0^\circ \leq y \leq 360^\circ$
 (D) $-1 \leq y \leq 1$ (E) $-\infty \leq y \leq \infty$ (F) None of the above
- _____ 3. What is the domain of $y = \sin^{-1}(x)$?
 (A) $0^\circ \leq y \leq 180^\circ$ (B) $-90^\circ \leq y \leq 90^\circ$ (C) $0^\circ < y < 360^\circ$
 (D) $-1 \leq y \leq 1$ (E) $-\infty \leq y \leq \infty$
- _____ 4. What is the range of $y = \text{ArcTan}(x)$?
 (A) $0^\circ < y < 180^\circ$ (B) $-90^\circ < y < 90^\circ$ (C) $0^\circ < y < 360^\circ$
 (D) $-1 \leq y \leq 1$ (E) $-\infty \leq y \leq \infty$
- _____ 5. The exact value (in radians) of $\sin^{-1}\left(\frac{-\sqrt{2}}{2}\right) =$
 (A) $-\frac{\pi}{4}$ (B) $\frac{\pi}{4}$ (C) $\frac{\pi}{2}$ (D) $\frac{\pi}{6}$ (E) $\frac{3\pi}{4}$

II. Free Response

Show all work on your own paper!

7. Determine the exact values of the six trigonometric functions of θ if θ is in standard position and its terminal side contains the point $(-1, 4)$.
8. Determine the range of $y = \csc(x)$.
9. Determine the (A) **amplitude** and (B) **period** of $y = 1 - 4\sin 5\left(x + \frac{\pi}{4}\right)$
10. Determine the (A) **horizontal** and (B) **vertical displacements** of $y = -3 - 4\cos 2(x + 40^\circ)$

III. Graph each of the following for one period:

11. $y = \sec(x)$

12. $y = \cot(x)$

13. $y = 4 \cos(\pi x)$

14. $y = \sin^{-1}(x)$

15. $y = 1 + 2 \cos 3(x - 30^\circ)$

16. $y = |\cos(x)|$

Extra Credit: Graph $y = -1 - 4 \sin\left(\frac{\pi}{3}x + 2\pi\right)$ for one period.