

Name : _____ ID. # : _____ SER. # : _____

1. Find the value of the following:

$$4 \cos^2 67.5^\circ - 2 \quad , \quad \tan^{-1}(\tan \frac{5\pi}{6}) \quad , \quad \csc [\cot^{-1}(-\frac{1}{2})] \quad , \quad \sin [2 \sec^{-1}(-\frac{5}{3})] \quad (4 \text{ pts})$$

2. If $y = -4 \sin x - 4\sqrt{3} \cos x$ is written in the form $y = k \sin(x + \alpha)$, where $0 \leq \alpha \leq 2\pi$, then find k and α and then the range and phase shift of the function. (3 pts)

3. Verify the identity: $\tan x - \sin 2x = \tan(-x) \cos 2x$ (3 pts)