Quiz #4 (EngMath I) [Wednesday, November 8, 2017]

Name: _____ **Dept:** _____ **ID No:** _____

1. (10 points) Find the Fourier series of the following periodic function, of period $p = 2\pi$:

$$f(x) = e^x, \quad -\pi \leq x \leq \pi.$$

2. (15 points) Show that the given integral represents the indicated function.

$$\int_0^\infty \frac{\omega^3 \sin x\omega}{\omega^4 + 4} d\omega = \frac{\pi}{2} e^{-x} \cos x, \quad \text{if } x > 0.$$