Dr. Z.'s Math 421(2), (Fall 2014, RU) REAL Quiz #4

NAME: (print!) _____

E-MAIL ADDRESS: (print!) _____

1. Show that the given functions are orthogonal on the given interval.

$$f_1(x) = e^{x^2}x^2 \quad , \quad f_2(x) = e^{-x^2}(x^3 + 2x) \quad , \quad [-1, 1] \quad .$$

2. Decide whether the set $\{\cos x\,,\, \cos 2x\,,\, \cos 3x\}$ is orthogonal over the interval $[0, \frac{\pi}{2}]$.