Dr. Z.'s Math 421(2), (Fall 2014, RU) REAL Quiz #5

NAME: (print!) _____

E-MAIL ADDRESS: (print!) _____

1. Find the Fourier series of $f(x) = 2x^2 + 1$ on the interval $(-\pi, \pi)$.

Note: You may use the ready-made indefinite integrals:

$$\int x^2 \sin nx = \frac{(2 - n^2x^2)\cos(nx) + 2nx\sin(nx))}{n^3}$$

$$\int x^2 \cos nx = \frac{(n^2x^2 - 2)\sin(nx) + 2xn\cos(nx))}{n^3} \quad .$$