Name _____

Homework 36
section 6.3

1. (5) Find the general solution to the differential equation

$$\frac{dy}{dx} = x + e^x + \sin x.$$

2. (6) Find the solution(s) to the initial value problem

$$\frac{dq}{dz} = z^2 + \frac{1}{z}\,, \quad q(e) = 2.$$

3. (9) A grapefruit is thrown with a velocity of 50 ft/sec upwards, off the top of a 256-foot tall building. How long does it take for the grapefruit to reach, and splatter all over, the sidewalk below? How fast is the grapefruit traveling when it hits the ground? What is the maximum height that the grapefruit reaches?