MAT 2384 3X Assignment # 2

due Wednesday, May 25th

Solve the following initial value problems:

1. $y' + \dfrac{3}{x}\, y = 12x^2, \quad y(1) = 5$
2. $y' - 4y = 7e^{2x}, \quad y(0) = 0$
3. $y' + y \tan x = y^2, \quad y(0) = 1/4$
4. $y'' - 2\sqrt{2}y' + 2y = 0, \quad y(0) = 0, \quad y'(0) = \sqrt{2}$
5. $y'' + 3y' - 28y = 0, \quad y(0) = 3, \quad y'(0) = 1$
6. $y'' - 6y' + 13y = 0, \quad y(0) = 1, \quad y'(0) = -3$

7. Use Newton's Method to find the root of $f(x) = x^3 + 8x - 7$ to 5 decimal places. Start with $x_0 = 0.75$.
8. Use Newton's Method to find the point of intersection of the curves $y = x^3$ and $y = \cos x$ to 6 decimal places. Start with $x_0 = 1$.