Quiz 2

Answer 4 of the 5 problems. Each are worth 2 points.

(Only 4 will be graded, so if you submit 5, I will grade the first 4 I see.)

1. Determine if there is an integration factor that makes the following equation exact:
$$\left(4xy - \frac{3}{2}x^2\right)dx + (x^2 - xy)dy = 0.$$

2. Solve the IVP
$$\frac{dy}{dx} = \frac{y^2 + xy}{x^2}; \quad y(1) = \frac{1}{2}.$$

3. Find the general solution to
$$\frac{dy}{dx} + 2y = e^{2x}y^4.$$

4. Find a general solution to
$$4\ddot{y} + 4\dot{y} + y = 0.$$

5. Solve the IVP
$$\ddot{y} + \dot{y} - 2y = 0; \quad y(0) = 3, \dot{y}(0) = 0$$