Math 205, Differential Equations

Test 1

1. Solve the following differential equation.

$$(3y^2 + 4x)\,dx + (2yx)\,dy = 0$$

2. Solve the following differential equation.

$$(3y^2 + 2xy + x^2)\,dx - (2xy + x^2)\,dy = 0$$

3. The temperature of an engine at the time it is shut off is 200^{o}C. The surrounding air temperature is 30^{o}C. After 10 min have elapsed, the surface temperature of the engine is 180^{o}C. How long will it take for the surface temperature of the engine to cool to 40^{o}C?

4. Solve the following differential equation.

$$xyy' + y^2 = 2x$$

5. Solve the following differential equation.

$$x^2y' + x(x+2)y = e^x$$