

20 points

Name _____

Diff. Eq. Homework #1

1. Solve $\frac{dy}{dx} = x^7 e^{x^4}$.

5 points

2. Solve $\frac{dy}{dx} = \frac{19x^2 - 16x + 8}{5x^3 - 2x^2 + 5x - 2}$.

5 points

3. Find two solutions of $x^2y'' + 4xy' - 18y = 0$, by seeking a solution of the form $y = x^m$. Plug $y = x^m$ into the equation and find values of m so that $y = x^m$ is a solution.

5 points

4. Classify the following equation as to its order, whether or not it is linear or nonlinear, and whether it is homogeneous or inhomogeneous:

$$x''' + 5x' + (3x'' - 4)x = t.$$

5 points