

NAME:

Home Work 2.
MAP 2302 - Differential Equations

Solve the following Linear First Ordinary Differential Equations:

1. $xy' + (x + 1)y = x^3$

2. $y' + \frac{2x + 1}{x}y = e^{-2x}$

3. $y' + \frac{3y}{x} = 6x^2$

4. $y' + 3y = 3x^2e^{-3x}$

5. $\frac{dr}{d\theta} + r \tan \theta = \cos^2 \theta; r\left(\frac{\pi}{4}\right) = 1$

6. $y' + y = f(x); y(0) = 6$ where $f(x) = \begin{cases} 5; & 0 \leq x < 10 \\ 1; & x \geq 10 \end{cases}$