Chapter 2 First Order Differential Equations

Name________________________

1. \( \frac{dr}{d\theta} + r \sec \theta = \cos \theta \)

2. \( (xy)dx + (2x^2 + 3y^2 - 20)dy = 0 \)

3. \( t^2 \frac{dy}{dt} + y^2 = ty \)

4. \( (5x + 4y) \, dx + (4x - 8y^3)dy = 0 \)
5. \((\sin 3x) \, dx + (2y\cos^3 3x)\, dy = 0\)
6. \((x^2+y^2)\, dx + (x^2 - xy)\, dy = 0\)

7. \((2xy^2 + y)\, dx + (2y^3-x)\, dy = 0\)
8. \((2x + 3y + 1)\, dx + (4x + 6y + 1)\, dy = 0\)
List the method that you would use to solve the following differential equations.

9. \[ \frac{dy}{dx} = \frac{x - y}{x} \]

9. \[ \frac{dy}{dx} = 5y + y^2 \]

9. \[ (y + x) \, dx + x \, dy = 0 \]

9. \[ \frac{dy}{dx} = \frac{x - 1}{y} \]

9. \[ 2xy' + y^2 = 2x^2 \]