

Math 122 - #15
Slope Fields / Euler's Method

Sketch the slope fields and some likely solution curves for the following differential equations:

1. $y' = 1 - y^2$

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

3. $y' = x - y^2$

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

Use Euler's method to find $y(1)$ with $h = 0.1$ and

5. $\frac{dy}{dx} = 1 - y \quad y(0) = 0$

6. $\frac{dy}{dx} = x^2 + y^2 \quad y(0) = 0$

7. $\frac{dy}{dx} = x - y \quad y(0) = 0$

8. $\frac{dy}{dx} = x^3 \quad y(0) = 0$

Answers

5. $y(1) \approx 0.651$

6. $y(1) \approx 0.293$

7. $y(1) \approx 0.3486$

8. $y(1) \approx 0.2025$