

Calculus II

Assignment 10

20180717

Name : _____

Student ID : _____

1. Solve the differential equation.

$$\frac{dy}{dx} = xe^{-y}$$

2. Find the solution of the differential equation that satisfies the given initial condition.

$$\frac{dy}{dx} = \frac{x}{y}, \quad y(0) = -3$$

3. Find an equation of the curve that passes through the point $(0, 1)$ and whose slope at (x, y) is xy .

4. Solve the differential equation.

$$y' - y = e^x$$

5. Solve the initial value problem.

$$t^3 \frac{dy}{dt} + 3t^2 y = \cos t, \quad y(\pi) = 0$$

6. Use Euler's method with step size 0.5 to compute the approximate y -values y_1, y_2, y_3 , and y_4 of the solution of the initial-value problem

$$y' = y - 2x, \quad y(1) = 0.$$

Reading materials : Textbook (Calculus 6ed Stewart) Section 10.1 ~ 10.5, especially

- Section 10.1, Example 2.
- Section 10.2, Example 3.
- Section 10.3, Example 1, 2, 3.
- Section 10.5, Example 1, 2, 3.

Or alternate Textbook (Calculus Early Transcendentals 6ed Stewart) Section 9.1 ~ 9.5, especially

- Section 9.1, Example 2.
- Section 9.2, Example 3.

- Section 9.3, Example 1, 2, 3.
- Section 9.5, Example 1, 2, 3.