

# Differential Equations Assignment

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## Differential Equations Assignment

### Question 0

Watch the lecture video [here](#).

Did you watch the video? [Type yes or no.]

- Solve the following differential equations for  $y$  by hand (**bring your paper to class to show me**).
- Check your answers using Sage's `desolve` (if `desolve` does not solve for  $y$ , try to use the regular `solve` command on the output from `desolve`).

### Question 1

$$\frac{dy}{dx} = \frac{\sqrt{x}}{e^y}$$

1

### Question 2

$$\frac{dy}{dx} = y^2 \sin(x)$$

2

### Question 3

$$\frac{dy}{dx} = \ln(x)\sqrt{y}$$

3

### Question 4

$$\frac{dy}{dx} = xy - 4x + 5y - 20 \quad [\text{Hint: Factor the right-hand side first.}]$$

4

### Question 5

$$(1 + x^2)\frac{dy}{dx} = y^3$$