Assignment Math45-Homework-WEEK-01 due 09/04/2020 at 11:59pm PDT

Which of the following is NOT a differential equation.

$$\bullet A. \frac{d^2y}{dx^2} + e^x \frac{dy}{dx} = x$$

• B.
$$\frac{\partial}{\partial x}g - \frac{\partial}{\partial y}g = g$$

• C.
$$y^3 - 2y^2 + y = 0$$

• D.
$$y'y = 7x$$

Which of the following IS a differential equation.

• A.
$$y^{(3)} - 2y^{(2)} + y = 0$$

• B.
$$y^2 - y + 5 = 0$$

• C.
$$\frac{d^2y}{dx^2} - e^x \frac{dy}{dx}$$

• D.
$$\frac{\partial}{\partial x}g - \frac{\partial}{\partial y}g$$

Which of the following IS an ordinary differential equation (ODE)?

• A.
$$y^2 - y + 5 = 0$$

• B.
$$y^{(3)} - 2y^{(2)} + y$$

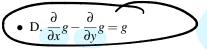
• D.
$$\frac{\partial}{\partial x}g - \frac{\partial}{\partial y}g = g$$

Which of the following IS a partial differential equation (PDE)?

$$\bullet A. \frac{d^2y}{dt^2} - \frac{dx}{dt}$$

$$\bullet B. \frac{d^2y}{dt^2} - \frac{dx}{dt} = 0$$

• C.
$$y^{(3)} - 2y^{(2)} + y = 0$$





Which of the following IS a linear differential equation?

• B.
$$y^{(3)} - 2y^{(2)} + y^2 = 0$$

• C.
$$\left(\frac{\partial}{\partial x}g\right)^2 - \frac{\partial}{\partial y}g = g$$

• D.
$$y''y - y' = 0$$

Which of the following IS a nonlinear differential equation?

• A.
$$y^{(3)} - 2y^{(2)} + y = 0$$

• B.
$$\frac{\partial}{\partial x}g - \frac{\partial}{\partial y}g = g$$

IS a nonlinear differential equation

C.
$$y''y - y' = 3$$

• D.
$$\frac{d^2y}{dt^2} - \frac{dx}{dt} = 0$$

7. (1 point) Select all conditions that the equation x'' - xx' = 3satsifies. There may be more than one correct box that needs to be checked.

- A. It is a differential equation
- B. It is a linear differential equation
- C. It is a nonlinear differential equation
- D. It is an ODE
- E. It is a PDE
- F. None of the above
- **8.** (1 point) Select all conditions that the equation $\frac{\partial g}{\partial v}$ + $\frac{\partial^2 g}{\partial x^2} = 0$ satsifies. There may be more than one correct box that needs to be checked.
 - A. It is an ODE
 - B. It is a PDE
 - C. It is a differential equation
 - D. It is a linear differential equation
 - E. It is a nonlinear differential equation

• F. None of the above

9. (1 point)

1. Which equation below is a linear ODE?

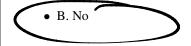
? 2. Which equation below is a linear PDE? 3. Which equation below is a nonlinear ODE?

3 B.
$$y'' = \sqrt{1 - y'}$$

2C.
$$g_x + g_y = 0$$

Is the differential equation sin(y') = y linear?

A. Yes



11. (1 point)

1. Which differential equation below has order two?

[2] 2. Which differential equation below has order four?

? 3. Which differential equation below has order three?

$$\mathbf{1} A. (1+\sin(\theta))\frac{d^2f}{d\theta} = \sqrt{3+f}$$

2B.
$$y^{(2)} - y^{(4)} + y' = y$$

3 C.
$$ty''' - t^3y' + y = t^4$$

Generated by © WeBWorK, http://webwork.maa.org, Mathematical Association of America