

Seperable Differential Equations (LVL1)

Date _____ Period _____

Find the general solution of each differential equation.

1) $\frac{dy}{dx} = 2xe^y$

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

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

4) $\frac{dy}{dx} = -\frac{1}{\sin y}$

5) $\frac{dy}{dx} = \frac{2e^x}{y^2}$

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

$$7) \frac{dy}{dx} = \frac{2x}{e^{2y}}$$

$$8) \frac{dy}{dx} = \frac{1}{\sec^2 y}$$

$$9) \frac{dy}{dx} = \frac{2x^2}{y^2}$$

$$10) \frac{dy}{dx} = \frac{3x^2}{e^{2y}}$$

$$11) \frac{dy}{dx} = \frac{3e^x}{y^2}$$

$$12) \frac{dy}{dx} = 3e^{x-y}$$

Answers to Seperable Differential Equations (LVL1) (ID: 1)

$$1) -e^{-y} = x^2 + C_1 \\ y = -\ln(-x^2 + C)$$

$$2) \frac{y^3}{3} = -3x + \frac{x^3}{3} + C_1 \\ y = \sqrt[3]{x^3 - 9x + C}$$

$$3) \frac{y^3}{3} = \frac{x^4}{2} + C_1 \\ y = \sqrt[3]{\frac{3x^4}{2} + C}$$

$$4) \cos y = x + C \\ y = \cos^{-1}(x + C)$$

$$5) \frac{y^3}{3} = 2e^x + C_1 \\ y = \sqrt[3]{6e^x + C}$$

$$6) \frac{y^3}{3} = x^2 + C_1 \\ y = \sqrt[3]{3x^2 + C}$$

$$7) \frac{e^{2y}}{2} = x^2 + C_1 \\ y = \frac{\ln(2x^2 + C)}{2}$$

$$8) \tan y = x + C \\ y = \tan^{-1}(x + C)$$

$$9) \frac{y^3}{3} = \frac{2x^3}{3} + C_1 \\ y = \sqrt[3]{2x^3 + C}$$

$$10) \frac{e^{2y}}{2} = x^3 + C \\ y = \frac{\ln(2x^3 + C)}{2}$$

$$11) \frac{y^3}{3} = 3e^x + C_1 \\ y = \sqrt[3]{9e^x + C}$$

$$12) e^y = 3e^x + C \\ y = \ln(3e^x + C)$$