Assignment 0

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment. **Due on 2018-07-30, 23:59 IST.**

1) Let \( z = f(x, y) \). Then the general solution of the partial differential equation

\[
\frac{\partial^2 z}{\partial x \partial y} = \frac{1}{xy^2} - \frac{2x}{y}
\]

is

\[ z = -\frac{1}{y} \ln x - x^2 \ln y + \phi(y) + \psi(x) \]

\[ z = -\frac{1}{y^2} \ln x - \frac{x^2}{y} + \phi(y) \]

\[ z = -\frac{1}{xy} - 2x \ln y + \psi(x) \]

\[ z = -\frac{1}{y} \ln x - x^2 \ln y + \phi(y) \]

No, the answer is incorrect. **Score: 0**

**Accepted Answers:**

\[ z = -\frac{1}{y} \ln x - x^2 \ln y + \phi(y) + \psi(x) \]

2) The general solution of the differential equation

\[
\frac{dy}{dx} + y \sin x = (e^{-\cos x})y^2
\]

is
3) Let \( z = f(x, y) \), \( p = \frac{\partial z}{\partial x} \) and \( q = \frac{\partial z}{\partial y} \).

The partial differential equation obtained by eliminating the arbitrary constants \( a \) and \( b \) from the equation

\[ 2z = (ax + y)^2 + b \]

is

\[ py + qx = p^2 \]
\[ x + qy = p^2 \]
\[ px + qy = q^2 \]

No, the answer is incorrect.
Score: 0
Accepted Answers:
\( px + qy = q^2 \)

4) Eliminating the arbitrary function \( f \) from the equation \( z = f(x^2 - y^2) \), we get

\[ 4xp + yq = 0 \]
\[ yp + xq = 0 \]
\[ p + qx = 0 \]
\[ py + q = 0 \]

No, the answer is incorrect.
Score: 0
Accepted Answers:
\( yp + xq = 0 \)

5) The number of solution of differential equation

\[ xy' = y - 1, \ y(0+) = 1 \]

is

only one
exactly two
infinite
zero

No, the answer is incorrect.
Score: 0
Accepted Answers:

infinite