

Worksheet: Differential Equations

ICSE · Class 12 · Mathematics · 8 questions · 34 marks

Name: _____

Date: _____

Score: _____ / 34

Q1. Determine the order and degree (if defined) of $y'' + 2y' + \sin y = 0$. [2 marks]

Q2. Find the general solution of $dy/dx + y = 1$ (y is not 1). [3 marks]

Q3. Show that $y' = (x+y)/x$ is homogeneous and solve it. [4 marks]

Q4. Find the general solution of $dy/dx + y/x = x^2$. [5 marks]

Q5. How many arbitrary constants does the particular solution of a third-order differential equation contain? [3 marks]

Q6. Find a particular solution of $x^2 dy + (xy + y^2)dx = 0$, given $y=1$ when $x=1$. [6 marks]

Q7. Find a particular solution of $dy/dx + 2y \tan x = \sin x$, given $y=0$ when $x=\pi/3$. [6 marks]

Q8. In a bank, principal increases continuously at the rate of 5% per year. An amount of Rs 1000 is deposited with this bank. How much will it be worth after 10 years ($e^{0.5}=1.648$)? [5 marks]
