Worksheet: Differential Equations

IB · 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]*