Maths IB_2 AA HL

Test 4

Subjects : *Differential equations*

Total : / 17

Friday 21.11.2025

Name: _____

Problem 1 IB Nov21 **[max / 8 marks]**

Solve the differential equation $\frac{dy}{dx} = \frac{\ln(2x)}{x^2} - \frac{2y}{x}, x > 0,$ given that $y=4$ at $x = \frac{1}{2}$.

Give your answer in the form $y = f(x)$.

Problem 2 IB May23 **[max / 9 marks]**

Consider the differential equation $\frac{\mathrm{d}y}{\mathrm{d}x} = \frac{x^2 + 3y^2}{xy}$, where $x > 0, y > 0$.

It is given that $y = 2$ when $x = 1$.

By solving the differential equation, show that $y = x\sqrt{\frac{9x^4 - 1}{2}}$. [8]

Find the value of y when $x = 1.1$. [1]