Differentiation & Applications (Q 6 & 7, Paper 1)

Lesson No. 7: Implicit Differentiation

2005

7 (b) (ii) Find the slope of the tangent to the curve $xy^2 + y = 6$ at the point (1, 2).

2004

7 (c) Given that $x = \dfrac{e^{2y} - 1}{e^{2y} + 1}$,

(i) show that $e^{2y} = \dfrac{1 + x}{1 - x}$

(ii) show that $\dfrac{dy}{dx}$ can be expressed in the form $\dfrac{p}{1 - x^p}$, $p, q \in \mathbf{N}$.

2003

7 (b) (ii) Given that $\dfrac{1}{x} + \dfrac{1}{y} = \dfrac{1}{6}$, find the value of $\dfrac{dy}{dx}$ at the point $(2, -3)$.

2002

7 (a) Find the slope of the tangent to the curve $9x^2 + 4y^2 = 40$ at the point (2, 1).

Answers

2005 7 (b) (ii) $-\dfrac{4}{5}$

2003 7 (b) (ii) $\left(\dfrac{dy}{dx}\right)_{(2, -3)} = -\dfrac{9}{4}$

2002 7 (a) $\left(\dfrac{dy}{dx}\right)_{(2, 1)} = -\dfrac{9}{2}$