King Fahd University of Petroleum and Minerals

Math 101 Quiz # 4(a) Time: 20 minutes Date: 12-4-2015

Name	ID #	Sr #	Sec. 12	Marks:

Q1. The variables $x \; and \; y$ are differentiable functions of a variable *t* and are related by the equation $x^2 + xy + y^2 = 19$. If $\frac{dx}{dt} = -1$ when $x = 2$ and $y = 3$; then find the value of $\frac{dy}{dt}$.

Q 2. If $y = \ln(\ln x)$, then find $x(\ln x)y'' + y'$.

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Math 101 Quiz # 4(b) Time: 20 minutes Date: 12-4-2015

Name	ID #	Sr #	Sec. 12	Marks:

Q1. At time t, the position of a body moving along the $s-axis$ is

$s(t) = t^3 - 6t^2 + 9t$ (s in meters, t in seconds).

Find the body's acceleration at the first time the velocity is zero.

Q 2. If $y = \frac{(x-1)(2x-1)^2}{(3x-1)^2(4x-1)^4}$; then calculate $\frac{dy}{dx}$ at x=0.

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Math 101 Quiz # 4(c) Time: 20 minutes Date: 12-4-2015

Name	ID #	Sr #	Sec. 13	Marks:

Q1. Let $h(x) = 2\,g(x) + f\left(\sqrt{g(x)}\right)$ and $g'(-1) = 7,\ f'(3) = 18, g(-1) = 9.$ Find $g'(-1)$.

Q 2. Find the equations of two lines through the origin and tangent to the curve of $x^2 - 4x + y^2 + 2 = 0.$

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Math 101 **Quiz # 4(d)** **Time: 20 minutes** **Date: 12-4-2015**

Name	ID #	Sr #	Sec. 13	Marks:

Q1. If $y = \left(1 + \sqrt{x}\right)^{x}$, then find $y'(1)$.

Q 2. If $(0, \beta)$ is a point on the tangent line to the graph of $y = -\pi + 4\sin^{-1}\left(\frac{1}{x}\right)$ at $x = \sqrt{2}$, then find the value of β.