KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

DEPARTMENT OF MATHEMATICS & STATISTICS

MATH101 - Section 05 (Term 141)

Date: November 11, 2014 **Quiz 3** Duration: 30 minutes

Family Name: **ID #:** _ _ _ _ _ _ _ _ _ **Serial #:** _ _

1. Find the slope of the tangent line to the graph $f(x) = \frac{\sin 3x}{1-\cos 3x}$ at $x = \pi/2$.

(5 points)

2. After t seconds, the position of a body moving along the s-axis (in meters) is:

$$s = f(t) = 2t^3 - 30t^2 + 96t + 5$$

Find the body's speed each time the acceleration is zero. **(5 points)**

3. Find y'', if:

(a) $y = \dfrac{1 + e^x}{e^x}$

(b) $3\cot y = xy$

(10 points, 5 points for each)

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DEPARTMENT OF MATHEMATICS & STATISTICS

MATH101 - Section 19 (Term 141)

Date: November 11, 2014 **Quiz 3** Duration: 30 minutes

Family Name: **ID #:** _ _ _ _ _ _ _ _ _ **Serial #:** _ _

1. Find $f'(2)$, if:

$$f(x) = \frac{1}{\sqrt[3]{x^2 + x + 2}}$$

(5 points)

2. After t seconds, the position of a body moving along the s-axis (in meters) is:

$$s = f(t) = \frac{1}{4}t^4 - 2t^3 + \frac{5}{2}t^2$$

Find the body's acceleration each time the velocity is zero. **(5 points)**

3. Find y'', if:

(a) $y = \dfrac{x+3}{1-x}$

(b) $3x^2 + 4y^2 = 4$

(10 points, 5 points for each)

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DEPARTMENT OF MATHEMATICS & STATISTICS

MATH101 - Section 28 (Term 141)

Date: November 11, 2014 **Quiz 3** Duration: 30 minutes

Family Name: **ID #:** _ _ _ _ _ _ _ _ _ **Serial #:** _ _

1. For the curve: $f(x) = x^2 \sin x + 2x \cos x - 2 \sin x$, find $f'(\pi)$. **(5 points)**

2. After t seconds, the position of a body moving along the s-axis (in meters) is:

$$s = f(t) = t^3 - 9t^2 + 24t + 5$$

Find the total distance travelled by the body from time $t = 0$ to $t = 3$. **(5 points)**

3. Find y'', if:

(a) $y = x^2(x^3 - 1)^5$

(b) $y^3 + 3x = 1 - 3y$

(10 points, 5 points for each)