

King Fahd University of Petroleum and Minerals
Department of Math & Stat
Math 132, Sections 1, 4 (102)
Quiz 5(a)

Time: 20 minutes

Marks: _____/9

Name: _____ Section #: _____

ID #: _____ Serial #: _____

1. If $z = xe^{x-y} + ye^{y-x}$, then find $\frac{\partial z}{\partial x} + \frac{\partial z}{\partial y}$.

2. The cost of producing x units of product A and y units of product B is given by $C(x, y) = 120 + x^3 + 8y^3 - 24xy$. Find the minimum cost.

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Quiz 5(b)

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Name: _____ Section #: _____

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1. If $f(x, y, z) = (2x + y^2 + z)^3$, then find $\frac{\partial^3 f}{\partial z \partial y \partial x}$.

2. For the function $f(x, y) = x^3 - 3xy + y^3$, find relative minimum value and the saddle point.

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Quiz 5(c)

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Name: _____ Section #: _____

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1. If $f(x, y, z) = \sin(3x + yz)$, then find $f_{xx} \left(0, \frac{\pi}{2}, 1 \right)$.

2. Find local maximum, local minimum and saddle point(s) for the function

$$f(x, y) = xy - y^2 - x^3.$$