

King Fahd University of Petroleum and Minerals
Department of Math & Stat
Math 201, Sections: 2, 5, 14 (071)
Quiz 3(a)

Time: 15 Minutes

Marks: _____/9

Name: _____

ID #: _____ Serial #: _____ Sec.#: _____

1. Use an iterated double integral to find volume of the solid that lies in the first octant and is bounded by the three coordinate planes and the cylinders

$$x^2 + y^2 = 4 \quad \text{and} \quad y^2 + z^2 = 4.$$

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Quiz 3(b)

Time: 15 Minutes

Marks: _____/9

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1. Evaluate $\int_0^4 \int_0^{x^2} x^3 \sin xy \, dy \, dx$.

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Quiz 3(c)

Time: 15 Minutes

Marks: _____/9

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1. Use the Lagrange multipliers to find extrema of $f(x, y, z) = x + 2y - 3z$ subject to the constraint $z = 4x^2 + y^2$.

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Quiz 3(d)

Time: 15 Minutes

Marks: _____/9

Name: _____

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1. Use Lagrange's multiplier method to find the maximum and minimum values of $f(x, y, z) = z - x^2 - y^2$ subject to the constraints $x + y + z = 9$ and $x^2 + y^2 = 1$.