Version 1

Math 241 - Quiz 2 - Tuesday, October 4

Your name here:

1. Let $f(x,y) = \sin x \sin y$.

   (a) Find $\nabla f(x,y)$. (1 point)

   $\nabla f(x,y) =$

   (b) Find all critical points of f and <u>use the second derivative test</u> to identify their types. (5 points)

Critical point: (,) is a min / max / saddle (circle one).

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(**OVER**)

2. Use the method of Lagrange multipliers to find the closest point to $P = (-3, 1)$ on the line $4x - 3y = 5$. (4 points)

x= , y=

Math 241 - Quiz 2 - Tuesday, October 4

Version 2

Your name here:

1. Let $f(x,y) = \cos x \cos y$.

   (a) Find $\nabla f(x,y)$. (1 point)

   $\nabla f(x,y) =$

   (b) Find all critical points of f and <u>use the second derivative test</u> to identify their types. (5 points)

Critical point:	(,)	is a	min / max / saddle	(circle one).
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(**OVER**)

2. Use the method of Lagrange multipliers to find the closest point to $P = (-3, 1)$ on the line $4x - 3y = -5$. (4 points)

x= , y=

Math 241 - Quiz 2 - Tuesday, October 4

Version 3

Your name here:

1. Let $f(x,y) = \cos x \sin y$.

   (a) Find $\nabla f(x,y)$. (1 point)

   $\nabla f(x,y) =$

   (b) Find all critical points of f and <u>use the second derivative test</u> to identify their types. (5 points)

Critical point: (,) is a min / max / saddle (circle one).

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Critical point: (,) is a min / max / saddle (circle one).

(**OVER**)

2. Use the method of Lagrange multipliers to find the closest point to $P = (-3, 1)$ on the line $4x - 3y = -10$. (4 points)

x= , y=