

MTH 203, Calculus III, Quiz One Spring 2013

Ayman Badawi

QUESTION 1. Find an equation of the plane that passes through the points $(1, -1, 2)$, $(-1, 1, 4)$ and $(1, 1, 3)$. Does the vector $i - 3j + k$ lie in such plane? explain.

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QUESTION 1. Given $Z = f(x, y) = x^2e^{xy} + \ln(xy + 7) + y^3 - x^2 + 3xy$ a) Find the domain of $f(x, y)$. Does $f(x, y)$ represent a curve or a solid object in 3D?b) Find $f_x = dz/dx$ **QUESTION 2.** Given $e^{zx} + xz + y^3z - 3zxy + 7 = 0$.a) Find dz/dx . Then evaluate dz/dx when $x = 0$ and $z = 1$.b) Find dy/dx and evaluate dy/dx when $y = 2$ and $x = 0$ **Faculty information**

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MTH 203, Calculus III, Quiz three Spring 2013

Ayman Badawi

QUESTION 1. Find the volume of the object that has a base on the xy -plane, say D , where D is the region in the first quadrant and it is bounded by the two functions $y = x^2$ and $y = x$. The height is z which is a function in terms of x and y , $z = f(x, y) = e^{(y^{1.5} - 0.75y^2 + 1)}$.

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MTH 203, Calculus III, Quiz four Spring 2013

Ayman Badawi

QUESTION 1. Find the surface area of the part of the surface $z = x + y^2$ that lies above the triangular region in the xy -plane with vertices $(0, 0)$, $(2, 0)$ and $(2, 1)$.

QUESTION 2. Find the volume of the object with base $x^2 + y^2 = 3$ and height $z = \sqrt{1 + x^2 + y^2}$

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MTH 102, Calculus for Business, Quiz three, Spring 2013

Ayman Badawi

QUESTION 1. Find $f'(x)$ and do not simplify:

a) $f(x) = 2\sqrt{4x + 1} - \frac{7}{5x-3} + \frac{3}{x} + 10$

b) $f(x) = (3x + 7)(2x^2 - 5x + 1)^8$

QUESTION 2. Let x be number of units of a certain product in hundreds and

$$P(x) = \sqrt{x^2 - 8x + 17}$$

be the profit function in hundred of DHS.

a) Find $P(5)$ and $P(6)$.b) Find the marginal profit when $x = 5$

c) Relate the answer in (b) to part (a). i.e., write a statement that is so clear for a reader.

Faculty information

MTH 203, Calculus III, Quiz 6 Spring 2013

Ayman Badawi

QUESTION 1. Find the area of the part that is bounded by $f(x, y) = e^{(x^2+y^2+4)}$ and the circle (in the xy- plane) $x^2 + y^2 = 9$

QUESTION 2. A force vector function $F(x, y) = 2yi + 6xj$ is applied on a particle that moves from $(2, 0)$ (counter clockwise) and then back to the same point $(2, 0)$ along the circle $x^2 + y^2 = 4$. Find the work.

Faculty information

MTH 203, Calculus III, Quiz 6 Spring 2013

Ayman Badawi

QUESTION 1. The path of a plane AA is the line $L_1 : x = 5 + 2t, y = -8 + t, z = 12 + 4t$. The path of a plane BB is the line $F : x = 5s, y = -13 + 3s, z = 2 + 10s$. Show that the two planes pass through a unique point in space and find the coordinates of this point. Will the two planes collapse in space?

QUESTION 2. Find the distance between the point $(2, 2, 2)$ and the line $L : x = 3t, y = 4t, z = 1$

QUESTION 3. Let $V = 2i + j - 10k, U = 6i + 6j + 3k$. Find $Proj_U^V$ and $|Proj_U^V|$. Roughly sketch the three vectors U, V and $Proj_U^V$.

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MTH 203, Calculus III, Quiz 7 Spring 2013

Ayman Badawi

QUESTION 1. Let $f(t) = \langle \sqrt{t-3}, t+1, \sin(\sqrt{t-3}) \rangle$

a) Find the domain of $f(t)$

b) Find the domain of f in the xy -plane. Sketch the domain in the xy -plane

c) Describe all points in the xy -plane where the curve of f intersects the xy -plane.

d) Find a point on the curve of f where the tangent line to the curve at that point is horizontal (i.e., horizontal here means it does not intersect the xy plane, there are infinitely many points, just give me one)).

e) Find a parametric equations of the tangent line to the curve of f at the point $(1, 5, \sin(1))$.

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MTH 203, Calculus III, Quiz 8 Spring 2013

Ayman Badawi

QUESTION 1. Given $f(x, y) = 18x + 5y + x^2 - 2xy + 1$ defined on the closed region that is bounded by $y = x^2$ and $y = 16$. Find the absolute minimum and the absolute maximum of $f(x, y)$ over the given closed region.

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MTH 111, Math for Architects, Quiz 10 Spring 2013

Ayman Badawi

QUESTION 1. Given the points: $A = (2, 4)$ and $B = (0, 2)$. Find a point C on the x-axis so that $|AC| + |CB|$ is minimum. You need to find the coordinates of the point C .

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