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2. Partial derivatives

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Problem Set A due Aug 4, 2021 20:30 IST Completed

1A-2(A)

2/2 points (graded)

Compute the indicated partial derivatives.

$$f(x,y) = xy^2 + y$$

$f_x(x,y) =$

y^2

✔ **Answer:** y^2

y^2

$f_y(x,y) =$

2*x*y+1

✔ **Answer:** 2*x*y+1

$2 \cdot x \cdot y + 1$

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Solution:

We have

$$f_x(x,y) = y^2$$

and

$$f_y(x,y) = 2xy + 1.$$

Submit You have used 1 of 5 attempts

Answers are displayed within the problem

1A-2(B)

2/2 points (graded)

Compute the indicated partial derivatives.

$$g(x,y) = \frac{x}{x+y}$$

$g_x(x,y) =$

y/(x+y)^2

✔

Answer: y/(x+y)^2

$\frac{y}{(x+y)^2}$

$g_y(x,y) =$

-x/(x+y)^2

✔

Answer: -x/(x+y)^2

$-\frac{x}{(x+y)^2}$

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Solution:

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From the quotient rule, we have

$$g_x(x,y) = \frac{(1)(x+y) - x(1)}{(x+y)^2} = \frac{y}{(x+y)^2}.$$

From the chain rule, we have

$$g_y(x,y) = \frac{\partial}{\partial y} x(x+y)^{-1} = -x(x+y)^{-2} = -\frac{x}{(x+y)^2}.$$

Submit You have used 3 of 5 attempts

Answers are displayed within the problem

1A-2(C)

2/2 points (graded)
Compute the indicated partial derivatives.

$$h(p,q) = \sin\left(pq^2\right)$$

$h_p(p,q) =$ q^2*cos(p*q^2) ✔ $q^2 \cdot \cos\left(p \cdot q^2\right)$

$h_q(p,q) =$ 2*p*q*cos(p*q^2) ✔ $2 \cdot p \cdot q \cdot \cos\left(p \cdot q^2\right)$

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2. Partial derivatives

Topic: Unit 1: Functions of two variables / 2. Partial derivatives

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Deadline Extension 3
Hello, I was assuming that I had the deadline until August 4th 23:59... and I am not able to attempt the question further. I was wonde...

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