✔ **Congratulations! You passed!**

Grade received 100%   To pass 80% or higher

Go to next item

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1. In this quiz you will put into practice how to calculate the Jacobian from the lecture video.

1 / 1 point

For $f(x, y) = x^2 y + \frac{3}{4} xy + 10$, calculate the Jacobian row vector J.

○ $J = [2xy + \frac{3}{4} y + 10, x^2 + \frac{3}{4} x + 10]$

○ $J = [xy + \frac{3}{4} y + 10, x^2 + \frac{3}{4} xy + 10]$

○ $J = [xy + \frac{3}{4} y, x^2 + \frac{3}{4} xy]$

◉ $J = [2xy + \frac{3}{4} y, x^2 + \frac{3}{4} x]$

✓ **Correct**
Well done!

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2. For $f(x, y) = e^x cos(y) + xe^{3y} - 2$, calculate the Jacobian row vector J.

1 / 1 point

◉ $J = [e^x cos(y) + e^{3y}, -e^x sin(y) + 3xe^{3y}]$

○ $J = [e^x cos(y) + e^{3y}, e^x sin(y) + xe^{3y}]$

○ $J = [e^x cos(y) + e^{3y} - 2, -e^x sin(y) + 3xe^{3y} - 2]$

○ $J = [e^x cos(y) + e^{3y} - 2, e^x sin(y) + xe^{3y} - 2]$

✓ **Correct**
Well done!

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3. For $f(x, y, z) = e^x cos(y) + x^2 y^2 z^2$, calculate the Jacobian row vector J.

1 / 1 point

○ $J = [e^x cos(y) + 2xy^2 z^2, e^x sin(y) + 2x^2 yz^2, 2x^2 y^2 z^2]$

◉ $J = [e^x cos(y) + 2xy^2 z^2, -e^x sin(y) + 2x^2 yz^2, 2x^2 y^2 z]$

○ $J = [e^x sin(y) + 2xy^2 z^2, -e^y sin(x) + 2x^2 yz^2, 2x^2 y^2 z^2]$

○ $J = [e^x cos(y) + xy^2 z^2, -e^x sin(y) + x^2 yz^2, x^2 y^2 z]$

✓ **Correct**
Well done!

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4. For $f(x, y, z) = x^2 + 3e^y e^z + cos(x) sin(z)$, calculate the the Jacobian row vector and evaluate at the point $(0, 0, 0)$.

1 / 1 point

○ $J(0, 0, 0) = [2, 3, 0]$

◉ $J(0, 0, 0) = [0, 3, 4]$

○ $J(0, 0, 0) = [3, 0, 2]$

○ $J(0, 0, 0) = [0, 2, 3]$

✓ **Correct**
Well done!

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5. For $f(x, y, z) = xe^y cos(z) + 5x^2 sin(y)e^z$, calculate the the Jacobian row vector and evaluate at the point $(0, 0, 0)$.

1 / 1 point

◉ $J(0, 0, 0) = [1, 0, 0]$

○ $J(0, 0, 0) = [0, 0, 1]$

○ $J(0, 0, 0) = [-1, 0, 1]$

○ $J(0, 0, 0) = [1, 0, -1]$

✓ **Correct**
Well done!