Practice Quiz, 5 questions

# ✓ Congratulations! You passed!

Next Item



1/1 point

1

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

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

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

$$igcup J = [2xy + rac{3}{4}y, x^2 + rac{3}{4}x]$$

#### Correct

Well done!

$$\int \int J = [xy+rac34y,x^2+rac34xy]$$

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



1/1 point

2

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

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

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

#### Correct

Well done!

Calculating the sacobian  $e^{x}sin(y) + xe^{3y}$ 

$$J=[e^x e^{-ax}]$$

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



1/1 point

3.

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

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

$$igg( igg) \quad J = [e^x cos(y) + 2xy^2 z^2, -e^x sin(y) + 2x^2 y z^2, 2x^2 y^2 z]$$

### Correct

Well done!

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

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



1/1 point

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

$$J(0,0,0) = [0,2,3]$$

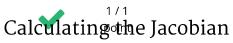
$$J(0,0,0) = [2,3,0]$$

$$J(0,0,0) = [3,0,2]$$

$$J(0,0,0) = [0,3,4]$$

#### Correct

Well done!



Practice Quiz, 5 questions 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).



$$J(0,0,0)=[1,0,0]$$

## Correct

Well done!

$$J(0,0,0) = [-1,0,1]$$

$$J(0,0,0) = [0,0,1]$$

$$J(0,0,0) = [1,0,-1]$$



