# Mendel University Brno

## Partial derivatives

### Robert Mařík

You will differentiate functions of more variables.

- `Full screen` button or `CTRL+L` switshes between window and Full Screen mode.

- `Start` button gives you a random problem.

- `Hint` button shows you a hint.

- `Solution` button shows you a solution.

- `Next question` button shows another random problem.

- `Home` button moves here.

Partial derivatives
Robert Mařík

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Start

Full Screen

Close

Home

## Question

$$\frac{\partial}{\partial x}\left(x^2 + y^3 - 2xy\right) =$$

## Question

$$\frac{\partial}{\partial y}\left(x^2 + y^3 - 2xy\right) =$$

## Question

$$\frac{\partial}{\partial x}\left(xye^x\right) =$$

## Question

$$\frac{\partial}{\partial y}\left(xye^x\right) =$$

Hint

Solution

Next question

Home

**Question**

$$\frac{\partial}{\partial x}\left(\frac{x}{y}\right) =$$

## Question

$$\frac{\partial}{\partial x}\left(\ln(x^2 + y^2)\right) =$$

**Question**

$$\frac{\partial}{\partial x}\left(\arctan\frac{x}{y}\right) =$$

**Question**

$$\frac{\partial}{\partial y}\left(\arctan\frac{x}{y}\right) =$$

## Question

$$\frac{\partial}{\partial x}\left(\frac{1}{x} + \frac{2}{y} + 9xy\right) =$$

## Question

$$\frac{\partial}{\partial y}\left(\frac{1}{x} + \frac{2}{y} + 9xy\right) =$$

**Question**

$$\frac{\partial}{\partial x}\left(e^{x-y}\right) =$$

**Question**

$$\frac{\partial}{\partial y}\left(e^{x-y}\right) =$$

**Question**

$$\frac{\partial}{\partial x}\left(x^2 e^{x-y}\right) =$$

**Question**

$$\frac{\partial}{\partial y}\left(x^2 e^{x-y}\right) =$$

**Question**

$$\frac{\partial}{\partial y}\left(\frac{y\cos y}{x}\right) =$$

**Question**

$$\frac{\partial}{\partial x}\left(\frac{y\cos y}{x}\right) =$$

## Question

$$\frac{\partial}{\partial x}\left(x\cos^2 y\right) =$$

**Question**

$$\frac{\partial}{\partial y}\left(x\cos^2 y\right) =$$

## Question

$$\frac{\partial}{\partial x}\left(x + y^2 + xe^{-x}\right) =$$

## Question

$$\frac{\partial}{\partial y}\left(x + y^2 + xe^{-x}\right) =$$

**Question**

$$\frac{\partial}{\partial x}\left(x^4 - 2\right) =$$

## Question

$$\frac{\partial}{\partial y}\left(x^4 - 2\right) =$$

$$\frac{\partial}{\partial x}\left(\frac{\sin x}{\cos y}\right) =$$

**Question**

$$\frac{\partial}{\partial y}\left(\frac{\sin x}{\cos y}\right) =$$

**Question**

$$\frac{\partial}{\partial x}\left(4x^2y^2\right) =$$

**Answer**

$$\frac{\partial}{\partial x}\left(x^2 + y^3 - 2xy\right) = 2x - 2y$$

**Answer**

$$\frac{\partial}{\partial y}\left(x^2 + y^3 - 2xy\right) = 3y^2 - 2x$$

**Answer**

$$\frac{\partial}{\partial x}\left(xye^x\right) = ye^x + xye^x$$

**Answer**

$$\frac{\partial}{\partial y}\left(xye^x\right) = xe^x$$

**Answer**

$$\frac{\partial}{\partial x}\left(\frac{x}{y}\right) = \frac{1}{y}$$

**Answer**

$$\frac{\partial}{\partial x}\left(\ln(x^2+y^2)\right) = \frac{2x}{x^2+y^2}$$

**Answer**

$$\frac{\partial}{\partial x}\left(\arctan\frac{x}{y}\right) = \frac{1}{1+\left(\dfrac{x}{y}\right)^2}\cdot\frac{1}{y}$$

**Answer**

$$\frac{\partial}{\partial y}\left(\arctan\frac{x}{y}\right) = \frac{1}{1+\left(\dfrac{x}{y}\right)^2}\cdot\frac{-x}{y^2}$$

**Answer**

$$\frac{\partial}{\partial x}\left(\frac{1}{x} + \frac{2}{y} + 9xy\right) = -\frac{1}{x^2} + 9y$$

**Answer**

$$\frac{\partial}{\partial y}\left(\frac{1}{x} + \frac{2}{y} + 9xy\right) = -\frac{2}{x^2} + 9x$$

**Answer**

$$\frac{\partial}{\partial x}\left(e^{x-y}\right) = e^{x-y}$$

**Answer**

$$\frac{\partial}{\partial y}\left(e^{x-y}\right) = -e^{x-y}$$

**Answer**

$$\frac{\partial}{\partial x}\left(x^2 e^{x-y}\right) = 2x e^{x-y} + x^2 e^{x-y}$$

**Answer**

$$\frac{\partial}{\partial y}\left(x^2 e^{x-y}\right) = -x^2 e^{x-y}$$

**Answer**

$$\frac{\partial}{\partial y}\left(\frac{y\cos y}{x}\right) = \frac{\cos y - y\sin y}{x}$$

**Answer**

$$\frac{\partial}{\partial x}\left(\frac{y\cos y}{x}\right) = -\frac{y\cos y}{x^2}$$

**Answer**

$$\frac{\partial}{\partial x}\left(x\cos^2 y\right) = \cos^2 y$$

**Answer**

$$\frac{\partial}{\partial y}\left(x\cos^2 y\right) = x \cdot 2\cos y(-\sin y)$$

**Answer**

$$\frac{\partial}{\partial x}\left(x + y^2 + xe^{-x}\right) = 1 + e^{-x} - xe^{-x}$$

**Answer**

$$\frac{\partial}{\partial y}\left(x + y^2 + xe^{-x}\right) = 2y$$

**Answer**

$$\frac{\partial}{\partial x}\left(x^4 - 2\right) = 4x^3$$

**Answer**

$$\frac{\partial}{\partial y}\left(x^4 - 2\right) = 0$$

**Answer**

$$\frac{\partial}{\partial x}\left(\frac{\sin x}{\cos y}\right) = \frac{\cos x}{\cos y}$$

**Answer**

$$\frac{\partial}{\partial y}\left(\frac{\sin x}{\cos y}\right) = \sin x(-\cos^{-2} y)(-\sin y)$$

**Answer**

$$\frac{\partial}{\partial x}\left(4x^2y^2\right) = 8xy^2$$