

## 2. minitest - varianta A

Funkce dvou proměnných

6. 10. 2023

Vypočtěte gradient funkce

$$f(x, y) = \frac{y}{1 - \ln x}$$

v bodě  $A = [1, 2]$ .

$$\frac{\partial f}{\partial x} = \left(-\frac{1}{x}\right) \cdot \frac{(-y)}{(1 - \ln x)^2} \Big|_{[1, 2]} = 2$$

$$\frac{\partial f}{\partial y} = \frac{1}{1 - \ln x} \Big|_{[1, 2]} = 1$$

$$\nabla f(1, 2) = (2, 1)$$

2. minitest - varianta B  
Funkce dvou proměnných  
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Vypočtěte gradient funkce

$$f(x, y) = \ln\left(\frac{y}{x-y}\right)$$

v bodě  $A = [2, 1]$ .

$$\frac{\partial f}{\partial x} = \frac{1}{\frac{y}{x-y}} \cdot \left(-\frac{y}{(x-y)^2}\right) = -\frac{1}{x-y} \Big|_{[2,1]} = -1$$

$$\frac{\partial f}{\partial y} = \frac{1}{\frac{y}{x-y}} \cdot \frac{1 \cdot (x-y) - y \cdot (-1)}{(x-y)^2} = \frac{x}{y(x-y)} \Big|_{[2,1]} = 2$$

$$\nabla f(2, 1) = (-1, 2)$$