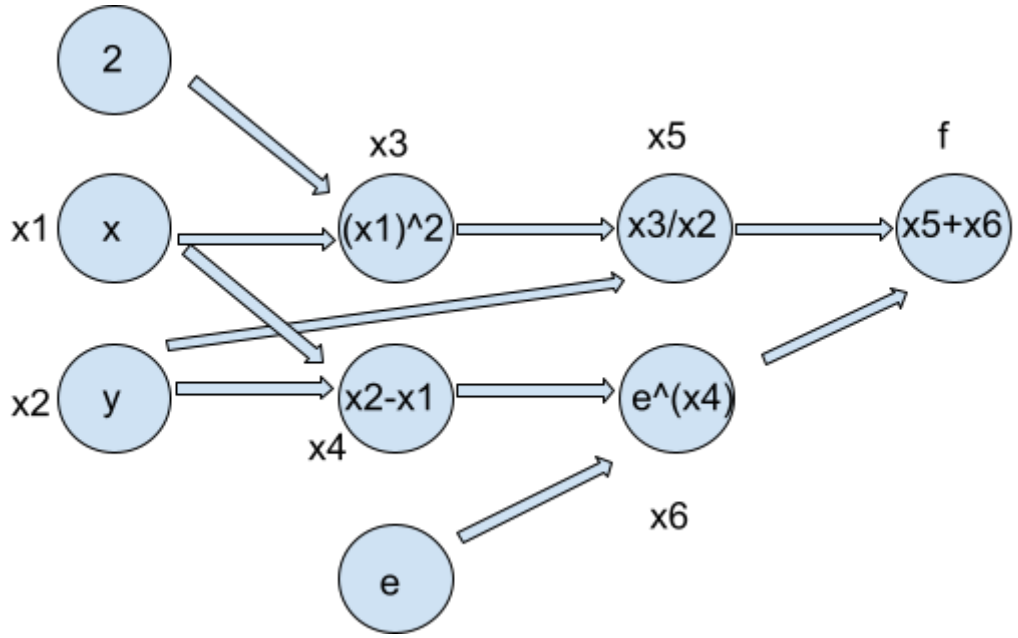
function:

$$f(x,\ y) = \frac{x^2}{y} + e^{y-x}$$

Computation graph:



Derivatives:

$$\frac{\partial f}{\partial x_6} = \frac{\partial (x_5 + x_6)}{\partial x_6} = 1$$

$$\frac{\partial f}{\partial x_5} = \frac{\partial (x_5 + x_6)}{\partial x_5} = 1$$

$$\frac{\partial f}{\partial x_4} = \frac{\partial f}{\partial x_6} \cdot \frac{\partial x_6}{\partial x_4} = 1 \cdot e^{x_4} = e^{x_4}$$

$$\frac{\partial f}{\partial x_3} = \frac{\partial f}{\partial x_5} \cdot \frac{\partial x_5}{\partial x_3} = 1 \cdot \frac{1}{x_2} = \frac{1}{x_2}$$

$$\frac{\partial f}{\partial x_2} = \frac{\partial f}{\partial x_5} \cdot \frac{\partial x_5}{\partial x_2} + \frac{\partial f}{\partial x_6} \cdot \frac{\partial x_6}{\partial x_4} \cdot \frac{\partial x_4}{\partial x_2} = 1 \cdot x_3 \cdot \left(-\frac{1}{x_2^2}\right) + 1 \cdot e^{x_4} \cdot 1 = e^{x_4} - \frac{x_3}{x_2^2}$$

$$\frac{\partial f}{\partial x_1} = \frac{\partial f}{\partial x_5} \cdot \frac{\partial x_5}{\partial x_3} \cdot \frac{\partial x_3}{\partial x_1} + \frac{\partial f}{\partial x_6} \cdot \frac{\partial x_6}{\partial x_4} \cdot \frac{\partial x_4}{\partial x_1} = 1 \cdot \frac{1}{x_2} \cdot 2x_1 + 1 \cdot e^{x_4} \cdot (-1) = \frac{2x_1}{x_2} - e^{x_4}$$