

Opdrachten lecture 3

Gradient descent

- 1) Bepaal $\frac{\partial Z}{\partial x}$ & $\frac{\partial Z}{\partial y}$ voor de volgende functies.
- $Z(x,y) = x^4 + x^3 y^2 + y^5 + 8$
 - $Z(x,y) = x^3 + x^2 y^4 - 2y^5$
 - $Z(x,y) = -3x^3 y^2 + 5$

1) Antwoorden

Handwritten solutions for the gradient descent exercises:

1) $Z(x,y) = x^4 + x^3 y^2 + y^5 + 8$
 $\frac{\partial Z}{\partial x} = x^2(3y^2 + 4x)$
 $\frac{\partial Z}{\partial y} = y(2x^3 + 5y^3)$

2) $Z(x,y) = x^3 + x^2 y^4 - 2y^5$
 $\frac{\partial Z}{\partial x} = x(2y^4 + 3x)$
 $\frac{\partial Z}{\partial y} = y^3(-10y + 4x^2)$

3) $Z(x,y) = -3x^3 y^2 + 5$
 $\frac{\partial Z}{\partial x} = -9x^2 y^2$
 $\frac{\partial Z}{\partial y} = -6yx^3$