# Introduction to Data Science

# Gradient Descent

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# Derivative

# Gradient descent

# Learning rate

CS244

# Example: Gradient descent

- Consider the following pair $(x, y)$ of points - $(1, 2),\ (2, 4),\ (3, 6),\ (4, 8)$
- Let us try to fit a curve as follows $y = w \times x$ where $w$ is initialized with 4, learning rate as $0.1$, MSE is used as cost function

# Example: Stochastic gradient descent

- Consider the following pair $(x, y)$ of points - $(1, 2),\ (2, 4),\ (3, 6),\ (4, 8)$
- Let us try to fit a curve as follows $y = w \times x$ where $w$ is initialized with 4, learning rate as $0.1$, MSE is used as cost function