# Gradient and backpropagation

## Gradient

### Derivation function approximation

The definition of derivation is

With is Infinitely small value. If we substitute it as a “small value”, it would not cause a big offset. We get the following equation

e.g. If we want the get the approximation of when x is close to 0, use the above equation we get

Then we replace with 0, , we get when x is close to 0.