



Welcome to

FUNDAMENTAL MATHEMATICS

FOR INDUSTRY EDUCATION

Lesson 05

Derivative of a Function Part 1



Definition of the Derivative

From the rate of change of f with respect to x at $x = a$,

$$\lim_{h \rightarrow 0} \frac{f(a+h) - f(a)}{h}$$

If this limit exists, we call it the derivative of the function f at a , defined as

If f is a function, the derivative of f with respect to x , denoted by $f'(x)$, is



Example $f(x) = 3x^2 - 2x$ Find $f'(x)$

Sol



Example $f(x) = x^2 + x + 1$ Find $f'(x)$



Example $y = x^3$ Find $\frac{dy}{dx}$



Example Given that the function representing the distance traveled by an object is $s = t^2 - 3t + 8$, find the velocity of the object at any time t .



Example $f(x) = 2(x + 1)$ Find $f'(x)$

