KONSEP TURUNAN

$$\lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$$

CONTOH 1

$f(x) = \sin x$

$f(x+h) =$ (+)

INGAT : $Sin\ A - Sin\ B = \ .Cos\frac{+}{\ }.Sin\frac{-}{2}$

$$f'(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$$

$$f'(x) = \lim_{h \to 0} \frac{(\ +\ ) -}{h}$$

Misal :

$A = x + h\ dan\ B = x$ maka

$$A + B = (\ +\ ) + \ =\ +$$
$$A - B = (\ +\ ) - \ :=$$

sehingga

$$sin\,(x+h) - sin\,x = sin \quad - sin$$

$$sin\,(x+h) - sin\,x = \ .Cos\frac{+}{}.Sin\ \frac{-}{}$$

$$sin\,(x+h) - sin\,x = \ .Cos\frac{+}{}.Sin-$$

Diperoleh

$$f'(x) = \lim_{h\to 0} \frac{2.Cos\left(\frac{2x+h}{2}\right).Sin\left(\frac{h}{2}\right)}{h}$$

$$f'(x) = \ .\lim_{h\to 0} Cos\left(\frac{+}{}\right).\lim_{h\to 0} \frac{Sin\,(-)}{}$$

$$f'(x) = \ .\lim_{h\to 0} Cos\left(-\right).\lim_{h\to 0} \frac{Sin\,(-)}{}$$

$$f'(x) = 2. \qquad .\frac{1}{2}$$

$$f'(x) =$$

$$Jadi\ f'(x) =$$

CONTOH 2

$f(x) = Cos\ x$

$f(x+h) = Cos(\ \ +\ \ )$

INGAT $Cos\ A\ - Cos\ B = -\ .Sin\left(\frac{+}{}\right).Sin\left(\frac{-}{}\right)$

$$f'(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$$

$$f'(x) = \lim_{h \to 0} \frac{Cos(\ \ +\ \ ) - Cos}{}$$

Misal

$A = x + h\ dan\ B = x$ maka

$$A + B = (\ \ +\ \ ) + \ \ = \ \ +$$
$$A - B = (\ \ +\ \ ) - \ \ =$$

Sehingga

$$Cos(x+h) - Cos\ x = Cos\ \ - Cos$$

$$Cos(x+h) - Cos\,x = -\ .Sin\left(\frac{+}{}\right).Sin\left(\frac{-}{}\right)$$

$$Cos(x+h) - Cos\,x = -\ .Sin\left(\frac{+}{}\right).Sin\left(-\right)$$

Diperoleh

$$f'(x) = \lim_{h\to 0} \frac{-.\ Sin\left(\frac{+}{}\right).Sin\left(-\right)}{h}$$

$$f'(x) = -\ .\lim_{h\to 0} \frac{Sin\left(\frac{+}{}\right).Sin\left(-\right)}{h}$$

$$f'(x) = -\ .\lim_{h\to 0}.Sin\left(\frac{+}{}\right).\lim_{h\to 0} Sin\frac{-}{}$$

$$f'(x) = -\ .Sin\frac{}{}.-$$

$$f'(x) = -Sin$$

$$Jadi f'(x) = -Sin$$