

Q5. If $y=4\cos x-6x$, find the relative error and percentage error in y at $x=1$ given $\delta(x)=0.005$.

Answer :

Given equation : $y = 4\cos x - 6x$.

$$y(1) = -3.83879$$

Derivative : $\frac{dy}{dx} = -4\sin x - 6$.

$$dy(1) = -0.0468294$$

$$\text{Relative error} = \frac{dy(1)}{y(1)}$$

$$\text{Relative error} = 0.012199$$

$$\text{Percentage error} = \text{Relative} \times 100$$

$$\text{Percentage error} = 1.2199 \%$$