# Answer to Question #91025 – Math – Calculus

## Question

Find the rate of change of h(x)=2 cos〖(3x+tanx)〗 with respect to x.

## Solution

We know that, rate of change of a function wit respect to (w.r.t.) x is same as differentiating it w.r.t x.

$h(\mathrm{x}) = 2\cos\left(3x + \tan x\right)$

On differentiating both sides w.r.t. $x$,

$$h'(x) = 2\left[-\sin\left(3x + \tan x\right)\right] \times \frac{d\left(3x + \tan x\right)}{dx} \quad [\text{Using chain rule}]$$

$$h'(x) = 2\left[-\sin\left(3x + \tan x\right)\right] \times \left(3 + \sec^2 x\right) \quad \left[\because \frac{d(x)}{dx} \quad \mathrm{l};\frac{d(\tan x)}{dx} = \sec^2 x\right]$$

$$h'(x) = -2\left(3 + \sec^2 x\right)\left[\sin\left(3x + \tan x\right)\right].$$

**Answer provided by https://www.AssignmentExpert.com**