Answer on Question # 47070 – Math – Differential Calculus | Equations

Task:

If $y = \cos x \sin x$, differentiate with respect to x.

A. $\cos^2 x - \sin^2 x$
B. $\sin 2x$
C. $\cos^2 x + \sin^2 x$
D. $\cos 2x$

Solution:

$$\frac{d}{dx} y = \frac{d}{dx}(\cos x \sin x) = \sin x \frac{d}{dx}(\cos x) + \cos x \frac{d}{dx}(\sin x) = -\sin^2 x + \cos^2 x = \cos(2x)$$

We applied differentiation rule for product of functions.

Thus, two answers (A. $\cos^2 x - \sin^2 x$ and D. $\cos 2x$) are correct.