

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

**Solution.**

Using chain rule:

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

**Answer.**

$\cos 2x$