

Question 34423

We are given $y(x) = e^{ax} \cos^3 x \sin^2 x$. Using Leibniz rule for differentiation, obtain

$$\frac{dy}{dx} = a e^{ax} \cos^3 x \sin^2 x - 3 e^{ax} \cos^2 x \sin^3 x + 2 e^{ax} \cos^4 x \sin x = e^{ax} \cos^2 x \sin x [\cos x \sin x - 3 \sin^2 x + 2 \cos^2 x]$$