

Exercise 3:

Find the derivatives of the following:

1. $y = e^x \sin x$

2. $y = x^2 e^x \cos x$

[Hint: Consider $f(x) = x^2$, $g(x) = e^x$ and $h(x) = \cos x$]
& apply the formula

$$\begin{aligned} \frac{d}{dx} [f(x) \cdot g(x) \cdot h(x)] = & \left\{ \frac{d}{dx} (f(x)) \right\} \times g(x) \cdot h(x) + \\ & f(x) \cdot \left\{ \frac{d}{dx} (g(x)) \right\} h(x) + \\ & f(x) \cdot g(x) \left\{ \frac{d}{dx} (h(x)) \right\} \end{aligned}$$