

STEP/Induction: Exercises - Overview (18/6/23)**Q1**

(i) If $y = e^x \sin x$, show that $\frac{dy}{dx} = \sqrt{2} e^x \sin \left(x + \frac{\pi}{4}\right)$

(ii) Prove by induction that $\frac{d^n y}{dx^n} = (\sqrt{2})^n e^x \sin \left(x + \frac{n\pi}{4}\right)$