STEP/Differentiation Q4 (15/6/23)

Find $\frac{d}{dx}\left(x^{sinx}\right)$

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Solution

$$\frac{d}{dx}\left(x^{sinx}\right) = \frac{d}{dx}\left(e^{lnx.sinx}\right) = e^{lnx.sinx}\left(\frac{1}{x}sinx + lnx.cosx\right)$$

$$= x^{sinx}\left(\frac{1}{x}sinx + lnx.cosx\right)$$