

$$\begin{aligned} \boxed{1/11} \quad E &= 3 \sin^2 \theta \tan \theta \cos \theta \\ \text{Exact: } E &= 3 \sin^2 2^\circ \tan 2^\circ \cos 2^\circ \\ &= \underline{1.275(10^{-4})} \\ \text{Approx: } E_{ap} &= 3(\theta^2)(\theta)(1) \\ &= 3\theta^3 \quad (\theta \text{ in rad}) \\ E_{ap} &= 3 \left[2 \frac{\pi}{180} \right]^3 = \underline{1.276(10^{-4})} \end{aligned}$$

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