

Quiz 11. Solution

$$1. \quad A = \int_0^{\frac{\pi}{4}} (\sec^2 x + \sqrt[3]{x^2}) dx$$

$$= \left(\tan x + \frac{x^{\frac{5}{3}}}{\frac{5}{3}} \right) \Big|_0^{\frac{\pi}{4}} = \tan \frac{\pi}{4} + \frac{3}{5} \left(\frac{\pi}{4} \right)^{\frac{5}{3}} - (0 + 0) = 1 + \frac{3}{5} \left(\frac{\pi}{4} \right)^{\frac{5}{3}}$$

$$2. \quad \sum_{i=0}^{\infty} (-1)^i = 1 - 1 + 1 - 1 + \dots + 1 - 1 + 1$$

$$= \sum_{k=0}^{49} \left[(-1)^{2k} + (-1)^{2k+1} \right] + 1 = 1$$