3) Evaluate $(1.0025)^{10}$, correct to six decimal places

Solution: $(1.0025)^{10} = (1+0.0025)^{10}$

$$= 1 + {}^{10}C_1(0.0025) + {}^{10}C_2(0.0025)^2 + {}^{10}C_3(0.0025)^3 + \ldots + (0.0025)^{10}$$

$$= 1 + 10 \times 0.0025 + 45\,(0.0000625)$$

We are leaving the other terms as we require the value up to five places of decimals, we have

$$(1.0025)^{10} = 1 + 0.025 + 0.000281 = 1.025281$$