

Section-2

Ans-2

$$(1-x^2)(1-y) dx = xy(1+y) dy$$

$$\frac{(1-x^2)}{x} dx = \frac{y(1+y)}{(1-y)} \cdot dy$$

$$\begin{array}{l} \text{let } 1-y=t \\ -dy = dt \end{array} \Bigg|$$

$$= \frac{-(1-t)(2-t) \cdot dt}{t}$$

$$= \frac{-(t^2 - 3t + 2)}{t}$$

$$\int \left(\frac{1}{x} - x \right) \cdot dx = \int \left(-t + 3 - \frac{2}{t} \right) \cdot dt$$

$$\log x - \frac{x^2}{2} = \frac{-t^2}{2} + 3t - 2 \log t + C$$

$$\log x - \frac{x^2}{2} = \frac{1}{2} (1-y)^2 + 3(1-y) - 2 \log |(1-y)| + C$$