# STEP/Integration Q4 (21/6/23)

$$\int \sqrt{1 - x^2}\,dx$$

## Solution

(speculative substitution)

Let $x = sin\theta$, so that $dx = cos\theta \, d\theta$

Then $\int \sqrt{1-x^2}dx = \int cos\theta cos\theta d\theta = \frac{1}{2}\int 1 + cos2\theta \, d\theta$  etc