

11. Jika $\int_1^2 f(x)dx = \sqrt{2}$, maka nilai $\int_1^4 \frac{1}{\sqrt{x}} f(\sqrt{x})dx$ adalah
- (A) $\frac{\sqrt{2}}{4}$
(B) $\frac{\sqrt{2}}{2}$
(C) $\sqrt{2}$
(D) $2\sqrt{2}$
(E) $4\sqrt{2}$

Solusi: [D]

$$\int_1^2 f(x)dx = \sqrt{2}$$

$$[F(x)]_1^2 = \sqrt{2}$$

$$F(2) - F(1) = \sqrt{2}$$

$$\int_1^4 \frac{1}{\sqrt{x}} f(\sqrt{x})dx = \int_1^4 2f(\sqrt{x})d(\sqrt{x}) = 2[F(\sqrt{x})]_1^4 = 2[F(\sqrt{4}) - F(\sqrt{1})] = 2[F(2) - F(1)] = 2\sqrt{2}$$