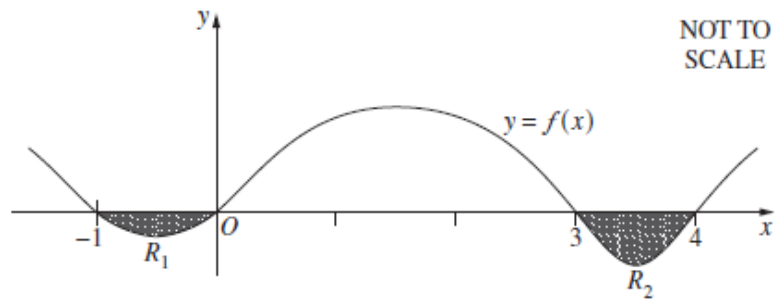


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- 2018 7** The diagram shows the graph of $y = f(x)$ with intercepts at $x = -1, 0, 3$ and 4 . The area of shaded region R_1 is 2. The area of shaded region R_2 is 3.



It is given that $\int_0^4 f(x) dx = 10$. What is the value of $\int_{-1}^3 f(x) dx$?

- A. 5 B. 9 C. 11 D. 15

C

Given $\int_{-1}^0 f(x) dx = -2$, $\int_3^4 f(x) dx = -3$ and $\int_0^4 f(x) dx = 10$:

$$\text{Firstly, } \int_0^4 f(x) dx = \int_0^3 f(x) dx + \int_3^4 f(x) dx$$

$$10 = \int_0^3 f(x) dx - 3 \qquad \therefore \int_0^3 f(x) dx = 13$$

$$\begin{aligned} \text{Also, } \int_{-1}^3 f(x) dx &= \int_{-1}^0 f(x) dx + \int_0^3 f(x) dx \\ &= -2 + 13 \\ &= 11 \end{aligned}$$

State Mean:
0.36

* These solutions have been provided by [projectmaths](#) and are not supplied or endorsed by NESA.