ΛΥΣΗ

α)

i. $\int_0^1 f(x)dx = -\mathrm{E}(\Omega_1) = -\frac{4}{3}$.

ii. $\int_0^3 f(x)dx = \int_0^1 f(x)dx + \int_1^3 f(x)dx = -\mathrm{E}(\Omega_1) + \mathrm{E}(\Omega_2) = -\frac{4}{3} + \frac{4}{3} = 0$.

iii. $\int_0^4 f(x)dx = \int_0^3 f(x)dx + \int_3^4 f(x)dx = 0 - \mathrm{E}(\Omega_3) = -\frac{4}{3}$.

β) Είναι

$$\int_0^{2023} f(x)dx - \int_4^{2023} f(x)dx = \int_0^{2023} f(x)dx + \int_{2023}^4 f(x)dx = \int_0^4 f(x)dx = -\mathrm{E}(\Omega_1) + \mathrm{E}(\Omega_2) - \mathrm{E}(\Omega_3) = -\frac{4}{3}$$