

Calculus I, Section 5.2, #48
The Definite Integral

If $\int_2^8 f(x) \, dx = 7.3$ and $\int_2^4 f(x) \, dx = 5.9$, find $\int_4^8 f(x) \, dx$.¹

We apply the property

$$\int_a^c f(x) \, dx + \int_c^b f(x) \, dx = \int_a^b f(x) \, dx$$

to the given integrals.

$$\int_2^8 f(x) \, dx = \int_2^4 f(x) \, dx + \int_4^8 f(x) \, dx$$

$$7.3 = 5.9 + \int_4^8 f(x) \, dx$$

$$7.3 - 5.9 = \int_4^8 f(x) \, dx$$

$$1.4 = \int_4^8 f(x) \, dx$$

¹Stewart, *Calculus, Early Transcendentals*, p. 390, #48.