Calcolare

$$\int_{-1}^{+\infty} f(x)dx$$

dove $f(x) = 1$ *per ogni* $x \in (-\infty, 2]$, *e* $f(x) = \frac{1}{(x-1)^4}$, *per* $x \in (2, +\infty)$.

SOLUZIONE.

$$\int_{-1}^{+\infty} f(x)dx = \int_{-1}^{2} dx + \int_{2}^{+\infty} \frac{1}{(x-1)^4}dx =$$

$$= 3 + \lim_{c \to +\infty} \left[-\frac{1}{3}(x-1)^{-3} \right]_{2}^{c} = 3 + \lim_{c \to +\infty} \left(-\frac{1}{3}(c-1)^{-3} + \frac{1}{3} \right) = \frac{10}{3}.$$