Calcular a integral definida $I = \int_0^1 \frac{y^2}{\sqrt{4-3y}}\, dy$.

Seja $4-3y = x$, $y = \frac{4-x}{3}$ e $dx = -3dy$.

$$I = -\frac{1}{27}\int_4^1 \frac{16-8x+x^2}{\sqrt{x}}\, dx = -\frac{1}{27}\left(32\sqrt{x} - \frac{16}{3}\sqrt{x^3} + \frac{2}{5}\sqrt{x^5}\right)\Big|_4^1 =$$
$$= -\frac{32-64-\frac{16}{3}+\frac{128}{3}+\frac{2}{5}-\frac{64}{5}}{27} = \boxed{\frac{106}{405}}$$

Documento compilado em Wednesday 12$^{\text{th}}$ March, 2025, 23:23, tempo no servidor.

Sugestões, comunicar erros: "a.vandre.g@gmail.com".