(4) $\int_3^4 \frac{x^2-1}{x-2}\,dx$

$\int_3^4 \frac{x^2}{x-2}\,dx - \int_3^4 \frac{1}{x-2}\,dx$ → $-\ln|x-2|\Big]_3^4$

$u = x-2$

$du = dx$

$x = u+2$

$\int \frac{(u+2)^2}{u}\,du$

$\int \frac{u^2+4u+4}{u}\,du$

$\int u + 4 + \frac{4}{u}\,du$

$\frac{u^2}{2} + 4u + 4\ln|u| - \ln|x-2|$

$\frac{(x-2)^2}{2} + 4(x-2) + 4\ln|x-2| - \ln|x-2|\Big]_3^4$

$\frac{(x-2)^2}{2} + 4(x-2) + 3\ln|x-2|\Big]_3^4$

$2 + 8 + 3\ln 2 - \left(\frac{1}{2} + 4 + \cancel{3\ln 1}^{0}\right)$

$10 + \ln 8 - 4.5$

7.579