

$$1. \int_1^2 (\int_{-1}^1 3y^2 - x^2 + 2y dx) dy$$

$$\begin{aligned} \blacksquare \int_{-1}^1 3y^2 - x^2 + 2y dx &= \\ 3xy^2 - \frac{x^3}{3} + 2xy \Big|_{-1}^1 &= \\ 3y^2 - \frac{1}{3} + 2y - 3y^2 - \frac{1}{3} + 2y &= \\ \frac{2}{3} + 4y \end{aligned}$$

$$\begin{aligned} \blacksquare \int_1^2 \frac{2}{3} + 4y dy &= \\ \frac{2y}{3} + 2y^2 \Big|_1^2 &= \\ \frac{4}{3} + 8 - \frac{2}{3} - 2 &= \frac{2}{3} + 4 \end{aligned}$$

$$2.$$