

$$1. \int_{z=0}^{z=2} \int_{y=0}^{y=3} \int_{x=0}^{x=1} (2x - y + z) dx dy dz$$

$$= \int_{z=0}^{z=2} \int_{y=0}^{y=3} \left[ 2 \cdot \frac{x^2}{2} - xy + xz \right]_{x=0}^{x=1} dy dz$$

$$= \int_{z=0}^{z=2} \int_{y=0}^{y=3} \left[ x^2 - xy + xz \right]_{x=0}^{x=1} dy dz$$

$$= \int_{z=0}^{z=2} \int_{y=0}^{y=3} \left[ 1^2 - 1(y) + 1(z) - (0^2 - 0(y) + 0(z)) \right] dy dz$$

$$= \int_{z=0}^{z=2} \int_{y=0}^{y=3} (1 - y + z) dy dz$$

$$= \int_{z=0}^{z=2} \left[ y - \frac{1}{2}y^2 + yz \right]_{y=0}^{y=3} dz$$

$$= \int_{z=0}^{z=2} \left[ 3 - \frac{1}{2}(3)^2 + 3z - \left( 0 - \frac{1}{2}(0)^2 + 0(z) \right) \right] dz$$

$$= \int_{z=0}^{z=2} \left( 3 - \frac{9}{2} + 3z \right) dz \rightarrow \left. \begin{aligned} & -\frac{3}{2}(2) + \frac{3}{2}(2)^2 - \left( -\frac{3}{2}(0) + \frac{3}{2}(0)^2 \right) \\ & = -3 + 6 \\ & = \textcircled{3} \end{aligned} \right\}$$

$$= \int_{z=0}^{z=2} \left( -\frac{3}{2} + 3z \right) dz$$

$$= \left[ -\frac{3}{2}z + \frac{3}{2}z^2 \right]_{z=0}^{z=2}$$