

1)

$$\int_0^y x^2 y^2 dz = x^2 y^3$$

$$\int_x^{3x} x^2 y^3 dy = \frac{80 \cdot 6}{4}$$

$$\int_0^1 20x^2 dx = \frac{20x^3}{3} \Big|_0^1 = \frac{20}{3}$$

$$2) \int_{2x}^{3x} y^2 \ln(x^5) dz = \frac{9yx^2 \ln(x^5)}{2} - \frac{4yx^2 \ln(x^5)}{2}$$

$$\int_0^x \frac{5yx^2 (\ln(x^5))}{2} dy = \frac{5x^4 (\ln(x^5))}{4}$$

$$\int_0^1 \frac{5x^4 \ln(x^5)}{4} = -1/4$$