

Quiz # 10 Solutions.**1.**

$$(\text{given integral}) = \int_0^\pi \int_{x=0}^{x=y} \frac{\cos y}{y} dx dy = \int_0^\pi \frac{\cos y}{y} y dy = \int_0^\pi \cos y dy = 0.$$

2.

$$M = \int_0^1 \int_{y=x}^{y=2-x} (6x + 3y + 3) dy dx,$$

$$M_x = \int_0^1 \int_x^{2-x} y(6x + 3y + 3) dy dx,$$

$$M_y = \int_0^1 \int_x^{2-x} x(6x + 3y + 3) dy dx.$$

3.

$$M = \int_0^1 \left[(6x + 3)y + \frac{3}{2}y^2 \right]_{y=x}^{y=2-x} dx = \dots = \int_0^1 -12x^2 + 12 dx = -4x^3 + 12x \Big|_0^1 = 8.$$

4.

$$\bar{x} = \frac{M_y}{M} = \frac{5}{3}; \quad \bar{y} = \frac{M_x}{M} = \frac{-2}{3}.$$