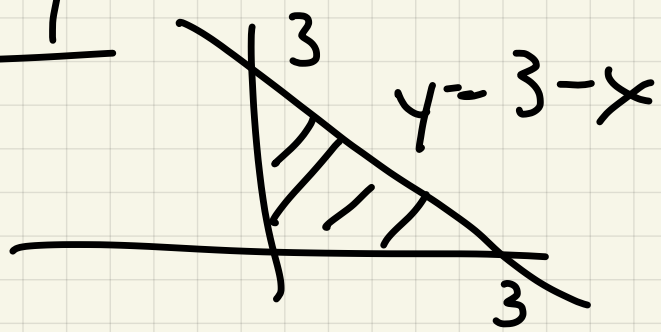
Quiz 7



1. $M = \int_0^3 3 - x\,dx = 3x - \frac{x^2}{2}\Big|_0^3 = 9/2$

2. $M_y = \int_0^3 (3-x)x\,dx = \int_0^3 3x - x^2\,dx =$

$$\frac{3x^2}{2} - \frac{x^3}{3}\Big|_0^3 = \frac{27}{2} - \frac{27}{3} = \frac{27}{6} = \frac{9}{2}$$

3. $M_x = \int_0^3 \frac{(3-x)^2}{2}\,dx$

4. $\bar{x} = \frac{M_y}{M} = 1$

5. $r = 1,\ r_0 \quad V = 2\pi \cdot 1 \cdot \frac{9}{2} = 9\pi$