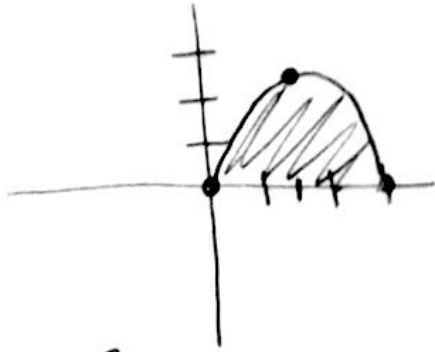


7) Area bounded by $y = -x^2 + 3x$
* and x-axis.



$$A = \int_0^3 (-x^2 + 3x) dx$$

$$= -\frac{x^3}{3} + \frac{3x^2}{2} \Big|_0^3$$

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

$$= -\frac{27}{3} + \frac{27}{2}$$

$$= -9 + \frac{27}{2}$$

$$= \frac{9}{2} \text{ units}^2$$

$$\begin{aligned} & \left(\begin{aligned} y &= x(-x+3) \\ 0 &= x(-x+3) \\ x &= 0 \quad x = 3 \end{aligned} \right. \\ & \text{vertex} \\ & -\frac{b}{2a} = \frac{-3}{2(-1)} = \left(\frac{3}{2}, \frac{9}{4} \right) \\ & -\left(\frac{3}{2} \right)^2 + 3\left(\frac{3}{2} \right) \\ & -\frac{9}{4} + \frac{9}{2} = \frac{9}{4} \end{aligned}$$