

$$b) \quad y = -x^2 + \frac{1}{2}x + \frac{1}{2}$$

$$x = \frac{-\frac{1}{2} \pm \sqrt{\frac{9}{4}}}{-2}$$

$$\begin{aligned} x_1 &= -\frac{1}{2} \\ x_2 &= 1 \end{aligned}$$

$$a = -1 \quad \Delta = \left(\frac{1}{2}\right)^2 - 4 \cdot (-1) \cdot \left(\frac{1}{2}\right)$$

$$b = \frac{1}{2}$$

$$c = \frac{1}{2}$$

$$\Delta = \frac{1}{4} + 2 \rightarrow \frac{1+8}{4} \rightarrow \frac{9}{4}$$

$$x_1 = -\frac{1}{2} \quad \vee \quad x_2 = 1$$

$$\Delta = \frac{9}{4}$$

$$V\left(\frac{-b}{2a}, \frac{-\Delta}{4a}\right) \Rightarrow V\left(\frac{1}{4}, \frac{9}{16}\right)$$

$$x_M = \frac{-b}{2a} \rightarrow x_M = \frac{-\frac{1}{2}}{-2} \rightarrow -\frac{1}{2} \cdot \left(-\frac{1}{2}\right) = \frac{1}{4} \rightarrow x_M = \frac{1}{4}$$

$$y_M = \frac{-\Delta}{4a} \rightarrow \frac{-\frac{9}{4}}{-4} \rightarrow -\frac{9}{4} \cdot \left(-\frac{1}{4}\right) \rightarrow \frac{9}{16} \rightarrow y_M = \frac{9}{16}$$

