

$$f(x) = a(x-h)^2 + k$$

$$\text{Vertex} = (h, k) \quad x = h$$

$$f(x) = ax^2 + bx + c$$

$$\text{Vertex} \left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right) \right) \quad x = \frac{-b}{2a}$$

$$\text{Ex. 5) } f(x) = 6x - 3x^2 - 5$$

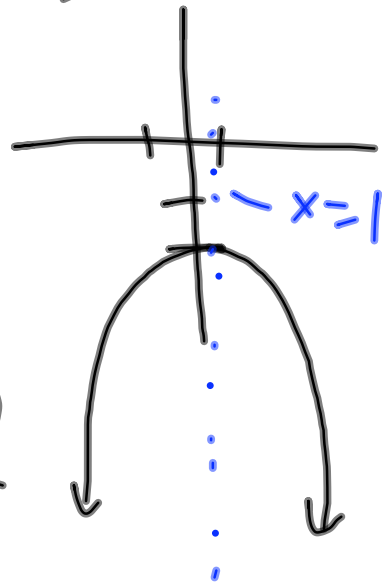
$$\text{Vertex} = -3x^2 + 6x - 5$$

axis of symmetry,

$$\frac{-b}{2a} = \frac{-6}{-6} = 1$$

$$f(1) = 2 \quad \underline{(1, 2)}$$

$$\underline{x = 1}$$



$$\text{Ex. 6) } f(x) = 3x^2 + 12x + 11$$

$$f(x) = a(x-h)^2 + k$$

$$= 3(\cancel{x^2 + 4x}) + 11$$

$$f(x) = 3(x^2 + 4x + 4) + 11 - 12$$

$$f(x) = 3(x+2)^2 - 1$$

$$(-2, -1)$$

