

ANSWER IN STANDARD FORM

$$\#6 \quad f(x) = 4(x+2)^2$$

$$h(x) = f(x+1) - 6$$

$$h(x) = 4(\underline{x+1+2})^2 - 6$$

$$h(x) = 4(x+3)^2 - 6$$

$$h(x) = 4(x^2 + 6x + 9) - 6$$

$$h(x) = 4x^2 + 24x + \underline{36} - 6$$

$$h(x) = 4x^2 + 24x + 30$$

$$g(x) = \frac{1}{2} h(x)$$

$$g(x) = \frac{1}{2} (4x^2 + 24x + 30)$$

$$g(x) = 2x^2 + 12x + 15$$

$$\text{VERTEX} \quad x = \frac{-b}{2a} = \frac{-12}{2(2)} = \frac{-12}{4} = -3 \quad x = -3$$

$$\begin{aligned} g(-3) &= 2(-3)^2 + 12(-3) + 15 \\ &= 18 - 36 + 15 \\ &= -18 + 15 \\ &= -3 \end{aligned}$$

$$\text{VERTEX} \quad (-3, -3)$$