

- A quadratic function has a leading coefficient of 3 and zeros $x = 6$ and $x = -2$. Write its equation in standard form and vertex form.

$$f(x) = 3(x-6)(x+2)$$

STANDARD FORM ...

$$\begin{aligned} f(x) &= 3(x^2 - 6x + 2x - 12) \\ &= 3(x^2 - 4x - 12) \end{aligned}$$

$$f(x) = 3x^2 - 12x - 36$$

VERTEX FORM ...

$$\text{VERTEX AT } x = \frac{-b}{2a} = \frac{12}{2(3)} = \frac{12}{6} = 2$$

$$y = f(2) = 3(4) - 12(2) - 36 = -48$$

$$f(x) = 3(x-2)^2 - 48$$