3.

Solution

To find the vertex, we look at the coefficients in the function $y(w)=aw^2+bw+c$
in this equation, $a=3$ and $b=3$
The first coordinate of the vertex has the formula: $\frac{-b}{2a}$ now, plugging into formula to get:
$\frac{-b}{2a}=-\frac{3}{2(3)}=-\frac{1}{2}$
The second coordinate of the vertex is $y(-\frac{1}{2}) = 3(-\frac{1}{2})^2+3(-\frac{1}{2})-3$
$=-\frac{15}{4}$
Therefore, the vertex of the graph of f is $(-\frac{1}{2},-\frac{15}{4})$