4.

Solution

Quadratic function: is a function that can be written in the form:

$g(w)=aw^2+bw+c$ where a, b, and c are real numbers and $a\neq 0$

we have $g(w)=3w^2-6w-10$, note: $3w^2-6w-10$ is in wg-plane

Here, we know that $a=3$, $b=-6$, $c=-10$

Since $a>0$,we know that the g-coordinate of the vertex is a minimum. However,to find the g-coordinate of our vertex we first need to find the w-coordinate of the vertex by using $w=-\frac{b}{2a}=-\frac{-6}{6}=1$ Now that we have the w-coordinate, we can find the g-coordinate of the vertex by finding $g(1)=3(1)^2-6(1)-10=3-6-10=-13$ Minimum$=-13$