

1.

Solution

To find the vertex, we look at the coefficients in the function $g(f) = af^2 + bf + c$
in this equation, $a = 3$ and $b = 6$

The first coordinate of the vertex has the formula: $\frac{-b}{2a}$ now, plugging into formula to get:

$$\frac{-b}{2a} = -\frac{6}{2(3)} = -1$$

The second coordinate of the vertex is $g(-1) = 3(-1)^2 + 6(-1) - 7$
 $= -10$

Therefore, the vertex of the graph of f is $(-1, -10)$