4.

Solution

To find the vertex, we look at the coefficients in the function $x(d) = ad^2 + bd + c$

in this equation, $a = 1$ and $b = 9$

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

$\frac{-b}{2a} = -\frac{9}{2(1)} = -\frac{9}{2}$

The second coordinate of the vertex is $x\left(-\frac{9}{2}\right) = 1\left(-\frac{9}{2}\right)^2 + 9\left(-\frac{9}{2}\right) - 6$

$= -\frac{105}{4}$

Therefore, the vertex of the graph of f is $\left(-\frac{9}{2}, -\frac{105}{4}\right)$