2.

Solution

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

$m(e) = ae^2 + be + c$ where a, b, and c are real numbers and $a \neq 0$

we have $m(e) = -e^2 + e + 16$, note: $-e^2 + e + 16$ is in em-plane

Here, we know that $a = -1$, $b = 1$, $c = 16$

Since $a < 0$,we know that the m-coordinate of the vertex is a maximum.However,to find the m-coordinate of our vertex we first need to find the e-coordinate of the vertex by using $e = -\frac{b}{2a} = -\frac{1}{-2} = \frac{1}{2}$ Now that we have the e-coordinate, we can find the m-coordinate of the vertex by finding $m\left(\frac{1}{2}\right) = -1\left(\frac{1}{2}\right)^2 + 1\left(\frac{1}{2}\right) + 16 = -\frac{1}{4} + \frac{1}{2} + 16 = \frac{65}{4}$ Maximum $= \frac{65}{4}$