2.

Solution

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

$j(z) = az^2 + bz + c$ where a, b, and c are real numbers and $a \neq 0$

we have $j(z) = 2z^2 - 2z - 16$, note: $2z^2 - 2z - 16$ is in zj-plane

Here, we know that $a = 2$, $b = -2$, $c = -16$

Since $a > 0$,we know that the j-coordinate of the vertex is a minimum. However,to find the j-coordinate of our vertex we first need to find the z-coordinate of the vertex by using $z = -\frac{b}{2a} = -\frac{-2}{4} = \frac{1}{2}$ Now that we have the z-coordinate, we can find the j-coordinate of the vertex by finding $j(\frac{1}{2}) = 2(\frac{1}{2})^2 - 2(\frac{1}{2}) - 16 = \frac{1}{2} - 1 - 16 = -\frac{33}{2}$ Minimum $= -\frac{33}{2}$