6.

Solution

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

$z(h)=ah^2+bh+c$ where a, b, and c are real numbers and $a\neq 0$

we have $z(h)=-h^2+6h-16$, note: $-h^2+6h-16$ is in hz-plane

Here, we know that $a=-1$, $b=6$, $c=-16$

Since $a<0$,we know that the z-coordinate of the vertex is a maximum.However,to find the z-coordinate of our vertex we first need to find the h-coordinate of the vertex by using $h=-\frac{b}{2a}=-\frac{6}{-2}=3$ Now that we have the h-coordinate, we can find the z-coordinate of the vertex by finding $z(3)=-1(3)^2+6(3)-16=-9+18-16=-7$ Maximum$=-7$