2.

Solution

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

$m(k)=ak^2+bk+c$ where a, b, and c are real numbers and $a\neq 0$

we have $m(k)=-2k^2+10k-14$, note: $-2k^2+10k-14$ is in km-plane

Here, we know that $a=-2$, $b=10$, $c=-14$

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 k-coordinate of the vertex by using $k=-\frac{b}{2a}=-\frac{10}{-4}=\frac{5}{2}$ Now that we have the k-coordinate, we can find the m-coordinate of the vertex by finding $m\left(\frac{5}{2}\right)=-2\left(\frac{5}{2}\right)^2+10\left(\frac{5}{2}\right)-14=-\frac{25}{2}+25-14=-\frac{3}{2}$ Maximum$=-\frac{3}{2}$