2.

Solution

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

$q(s)=as^2+bs+c$ where a, b, and c are real numbers and $a\neq 0$

we have $q(s)=2s^2+2s+19$, note: $2s^2+2s+19$ is in sq-plane

Here, we know that $a=2$, $b=2$, $c=19$

Since $a>0$,we know that the q-coordinate of the vertex is a minimum. However,to find the q-coordinate of our vertex we first need to find the s-coordinate of the vertex by using $s=-\frac{b}{2a}=-\frac{2}{4}=-\frac{1}{2}$ Now that we have the s-coordinate, we can find the q-coordinate of the vertex by finding $q(-\frac{1}{2})=2(-\frac{1}{2})^2+2(-\frac{1}{2})+19=\frac{1}{2}-1+19=\frac{37}{2}$ Minimum=$\frac{37}{2}$