5.

Solution

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

$e(p)=ap^2+bp+c$ where a, b, and c are real numbers and $a\neq 0$

we have $e(p)=2p^2+12p-3$, note: $2p^2+12p-3$ is in pe-plane

Here, we know that $a=2$, $b=12$, $c=-3$

Since $a>0$,we know that the e-coordinate of the vertex is a minimum. However,to find the e-coordinate of our vertex we first need to find the p-coordinate of the vertex by using $p=-\frac{b}{2a}=-\frac{12}{4}=-3$ Now that we have the p-coordinate, we can find the e-coordinate of the vertex by finding $e(-3)=2(-3)^2+12(-3)+3=18-36-3=-21$ Minimum$=-21$