1.

Solution

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

$d(e)=ae^2+be+c$ where a, b, and c are real numbers and $a\neq 0$

we have $d(e)=-2e^2-7e-18$, note: $-2e^2-7e-18$ is in ed-plane

Here, we know that $a=-2$, $b=-7$, $c=-18$

Since $a<0$,we know that the d-coordinate of the vertex is a maximum.However,to find the d-coordinate of our vertex we first need to find the e-coordinate of the vertex by using $e=-\frac{b}{2a}=-\frac{-7}{-4}=-\frac{7}{4}$ Now that we have the e-coordinate, we can find the d-coordinate of the vertex by finding $d\left(-\frac{7}{4}\right)=-2\left(-\frac{7}{4}\right)^2-7\left(-\frac{7}{4}\right)-18=-\frac{49}{8}+\frac{49}{4}-18=-\frac{95}{8}$ Maximum$=-\frac{95}{8}$