

1.

Solution

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

$p(x) = ax^2 + bx + c$ where a , b , and c are real numbers and $a \neq 0$

we have $p(x) = 2x^2 + 14x + 18$, note: $2x^2 + 14x + 18$ is in xp -plane

Here, we know that $a=2$, $b=14$, $c=18$

Since $a > 0$, we know that the p -coordinate of the vertex is a minimum. However, to find the p -coordinate of our vertex we first need to find the x -coordinate of the vertex by using $x = -\frac{b}{2a} = -\frac{14}{4} = -\frac{7}{2}$. Now that we have the x -coordinate, we can find the p -coordinate

of the vertex by finding $p(-\frac{7}{2}) = 2(-\frac{7}{2})^2 + 14(-\frac{7}{2}) + 18 = \frac{49}{2} - 49 + 18 = -\frac{13}{2}$ Minimum $= -\frac{13}{2}$