

1.

Solution

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

$r(h) = ah^2 + bh + c$ where a , b , and c are real numbers and $a \neq 0$

we have $r(h) = 3h^2 + 12h + 8$, note: $3h^2 + 12h + 8$ is in hr -plane

Here, we know that $a=3$, $b=12$, $c=8$

Since $a > 0$, we know that the r -coordinate of the vertex is a minimum. However, to find the r -coordinate of our vertex we first need to find the h -coordinate of the vertex by using $h = -\frac{b}{2a} = -\frac{12}{6} = -2$ Now that we have the h -coordinate, we can find the r -coordinate

of the vertex by finding $r(-2) = 3(-2)^2 + 12(-2) + 8 = 12 - 24 + 8 = -4$ Minimum = -4