

5.

Solution

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

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

we have $g(h) = 3h^2 + 10h + 25$, note: $3h^2 + 10h + 25$ is in hg -plane

Here, we know that $a=3$, $b=10$, $c=25$

Since $a > 0$, we know that the g -coordinate of the vertex is a minimum. However, to find the g -coordinate of our vertex we first need to find the h -coordinate of the vertex by using $h = -\frac{b}{2a} = -\frac{10}{2 \cdot 3} = -\frac{5}{3}$ Now that we have the h -coordinate, we can find the g -coordinate

of the vertex by finding $g(-\frac{5}{3}) = 3(-\frac{5}{3})^2 + 10(-\frac{5}{3}) + 25 = \frac{25}{3} - \frac{50}{3} + 25 = \frac{20}{3}$ Minimum = $\frac{20}{3}$