

6.

### Solution

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

$x(v) = av^2 + bv + c$  where  $a$ ,  $b$ , and  $c$  are real numbers and  $a \neq 0$

we have  $x(v) = 2v^2 - 13v - 15$ , note:  $2v^2 - 13v - 15$  is in  $vx$ -plane

Here, we know that  $a=2$ ,  $b=-13$ ,  $c=-15$

Since  $a > 0$ , we know that the  $x$ -coordinate of the vertex is a minimum. However, to find the  $x$ -coordinate of our vertex we first need to find the  $v$ -coordinate of the vertex by using  $v = -\frac{b}{2a} = -\frac{-13}{2} = \frac{13}{2}$  Now that we have the  $v$ -coordinate, we can find the  $x$ -coordinate

of the vertex by finding  $x(\frac{13}{2}) = 2(\frac{13}{2})^2 - 13(\frac{13}{2}) - 15 = \frac{169}{2} - \frac{169}{2} - 15 = -15$  Minimum =  $-15$