6.

Solution

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

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

we have $t(x)=2x^2-3x+20$, note: $2x^2-3x+20$ is in xt-plane

Here, we know that $a=2$, $b=-3$, $c=20$

Since $a>0$,we know that the t-coordinate of the vertex is a minimum. However,to find the t-coordinate of our vertex we first need to find the x-coordinate of the vertex by using $x=-\frac{b}{2a}=-\frac{-3}{4}=\frac{3}{4}$ Now that we have the x-coordinate, we can find the t-coordinate of the vertex by finding $t(\frac{3}{4})=2(\frac{3}{4})^2-3(\frac{3}{4})+20=\frac{9}{8}-\frac{9}{4}+20=\frac{151}{8}$ Minimum $=\frac{151}{8}$