8. [12 points] Let 

\[ V(x) = -\frac{1}{2}x^2 + \frac{9}{2}x + \frac{47}{8} \quad \text{for} \quad 0 \leq x \leq 10 \]

be the number of viewers of a 10-minute interview (in millions), \( x \) minutes after the interview started.

a. [5 points] Write the quadratic function \( V(x) \) in vertex form by completing the square. Show all your work carefully, step by step to receive full credit.

\[ V(x) = \text{______________________________} \]

b. [3 points] In how many minutes after the beginning of the interview did the number of viewers reach its minimum and maximum, respectively?

Minimum after: ________________  
Maximum after: ________________
c. [4 points] For how long will the number of viewers of the interview be more than 10 million? Recall that

\[ V(x) = -\frac{1}{2}x^2 + \frac{9}{2}x + \frac{47}{8} \quad \text{for} \quad 0 \leq x \leq 10. \]

Solve this problem algebraically. Your answer must be in exact form. Show all your work.

Answer: ___________________________