

6. [9 points] Let  $V(t)$  be the total number of tickets for a concert that have been sold (in thousands)  $t$  minutes after 8 pm.

a. [2 points] There are only 2 million tickets for the concert on sale. Let  $U(t)$  be the number of unsold tickets at  $t$  minutes after 8 pm. Find a formula for  $U(t)$ .

$$\boxed{\text{Solution: } U(t) = 2,000,000 - 1000V(t)}$$

b. [2 points] Let  $E(m)$  be the total number of tickets for the concert that have been sold (in thousands)  $m$  minutes **after 11 pm**. Find a formula for  $E(m)$ .

$$\boxed{\text{Solution: } E(m) = V(m + 180)}$$

c. [2 points] Let  $H(p)$  be the total number of tickets for the concert that have been sold (**in hundreds**)  $p$  **hours** after 8 pm. Find a formula for  $H(p)$ .

$$\boxed{\text{Solution: } H(p) = 10V(60p)}$$

d. [3 points] Write an equation that represents the following fact: " $M$  minutes after 8 pm, the number of tickets sold was equal to a third of the tickets sold by 9 pm".

$$\boxed{\text{Solution: Equation: } V(M) = \frac{1}{3}V(60)}$$