5. (*12 points*) Suppose that the quantity supplied $S(p)$ and quantity demanded $D(p)$ where p denotes price in dollars of hot dogs at a baseball game are given by the following functions: $S(p) = -300 + 470p$ and $D(p) = 700 - 30p$.

    (a)   Find the equilibrium price for hot dogs at the baseball game. Show all your work for partial credit points!

$$S(p) = D(p)$$
$$-300 + 470p = 700 - 30p$$
$$500p = 1000$$
$$p = 2$$

    (b)   Using part (a), find the equilibrium quantity. Show all your work for partial credit points!

$$D(2) = 700 - 30(2)$$
$$= 700 - 60$$
$$= 640$$

6. (*7 points*) Find the midpoint between the following two points: $(-1, 1)$ and $(5, 7)$. Show all your work for partial credit points!

$$M\left((-1,1),\ (5,7)\right) = \left(\frac{-1+5}{2},\ \frac{1+7}{2}\right)$$
$$= \left(\frac{4}{2},\ \frac{8}{2}\right) = (2, 4)$$

7. (*7 points*) Find the slope of $y = 7x + 3$ using two points on its graph and the slope formula. Show all your work for partial credit points!

Two points: $(1, 10)$, $(0, 3)$

$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{3-10}{0-1} = \frac{-7}{-1} = 7$$