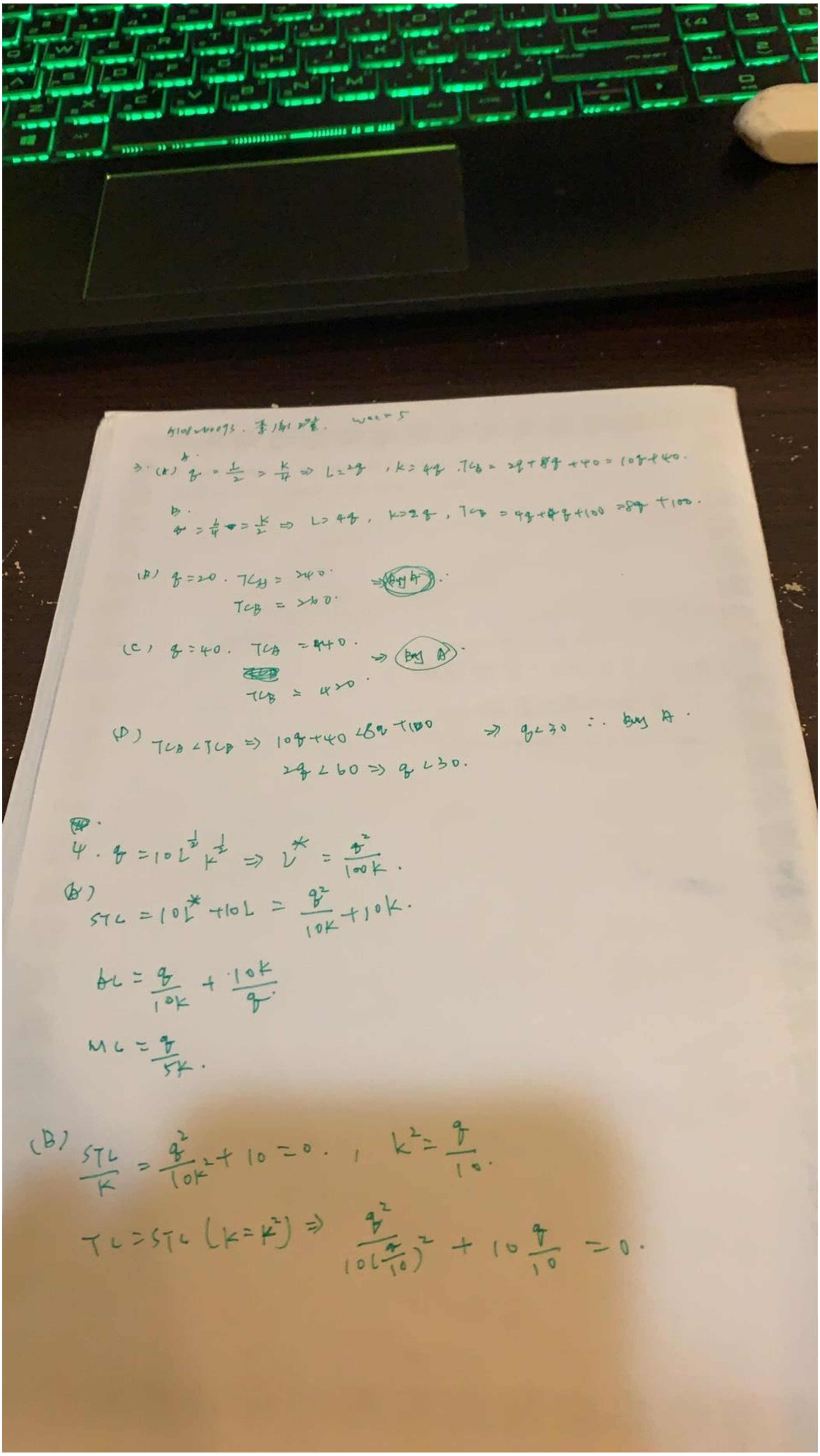

510820073 . 李[illegible] . week5

3. (A) A. $q = \frac{L}{2} = \frac{K}{4} \Rightarrow L = 2q$, $K = 4q$. $TC_A = 2q + 8q + 40 = 10q + 40$.

B. $q = \frac{L}{4} = \frac{K}{2} \Rightarrow L = 4q$, $K = 2q$, $TC_B = 4q + 4q + 100 = 8q + 100$.

(B) $q = 20$. $TC_A = 240$.
$TC_B = 260$. $\Rightarrow \boxed{\text{Buy A}}$.

(C) $q = 40$. $TC_A = 440$.
$TC_B = 420$. $\Rightarrow \boxed{\text{Buy B}}$.

(D) $TC_A < TC_B \Rightarrow 10q + 40 < 8q + 100$ $\Rightarrow q < 30$ ∴ Buy A.
$2q < 60 \Rightarrow q < 30$.

4. $q = 10 L^{\frac{1}{2}} K^{\frac{1}{2}} \Rightarrow L^* = \frac{q^2}{100K}$.

(A) $STC = 10L^* + 10L = \frac{q^2}{10K} + 10K$.

$AC = \frac{q}{10K} + \frac{10K}{q}$.

$MC = \frac{q}{5K}$.

(B) $\frac{\partial STC}{\partial K} = -\frac{q^2}{10K^2} + 10 = 0$, $K^2 = \frac{q}{10}$.

$TC = STC(K = K^2) \Rightarrow \frac{q^2}{10(\frac{q}{10})^2} + 10\frac{q}{10} = 0$.