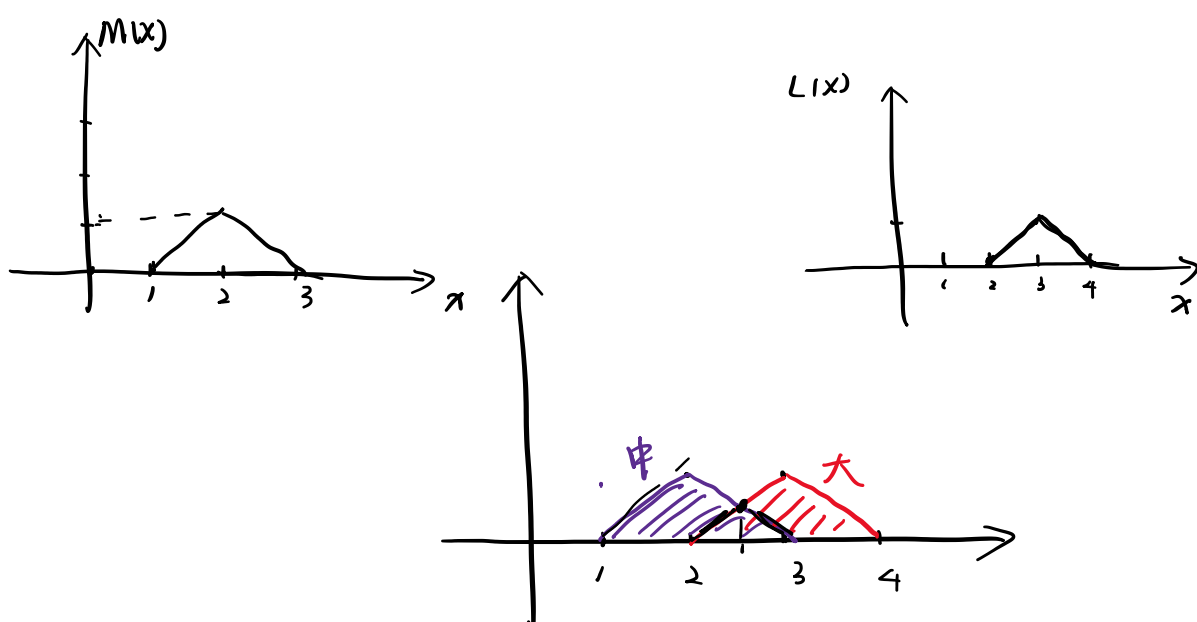## 第一题

中等消费者　$M(x) = \begin{cases} x-1 & x \in [1,2] \\ 3-x & x \in [2,3] \\ 0 & others \end{cases}$

大消费者　$L(x) = \begin{cases} x-2, & x \in [2,3] \\ 4-x, & x \in [3,4] \\ 0 & others \end{cases}$

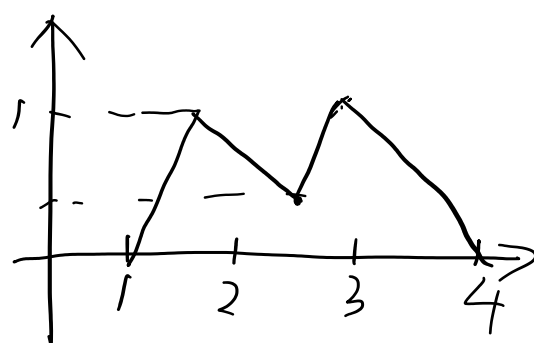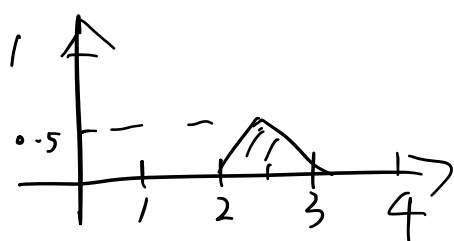(1) 中等消费者和大消费者之间 (蓝色)

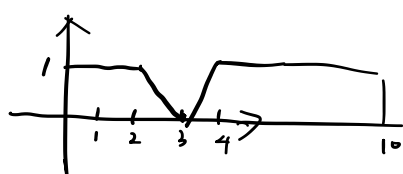$(M \cap L)(x) = \begin{cases} x-2 & 2 \le x \le 2.5 \\ 3-x & 2.5 \le x \le 3 \\ 0 & others \end{cases}$

(2) 中等消费者或大消费者 (蓝色)

$(M \cup L)(x) = \begin{cases} x-1 & 1 \le x \le 2 \\ 3-x & 2 \le x \le 2.5 \\ x-2 & 2.5 \le x \le 3 \\ 4-x & 3 \le x \le 4 \\ 0 & others \end{cases}$

(3) 不是大消费者

$L^c_{(x)} = \begin{cases} 1 & x \in \{[0,2] \cup [4,+\infty]\} \\ -x+3 & 2 \le x \le 3 \\ x-3 & 3 \le x \le 4 \end{cases}$

第二题

(1) $A \vee B = \dfrac{0 \vee 0}{0.730} + \dfrac{0.8 \vee 0.4}{0.735} + \dfrac{1 \vee 0.8}{0.740} + \dfrac{0.6 \vee 1}{0.745} + \dfrac{0 \vee 0.6}{0.750}$

$= \dfrac{0}{0.730} + \dfrac{0.8}{0.735} + \dfrac{1}{0.740} + \dfrac{1}{0.745} + \dfrac{0.6}{0.750}$

(2) $A \cap B = \dfrac{0 \wedge 0}{0.730} + \dfrac{0.8 \wedge 0.4}{0.735} + \dfrac{1 \wedge 0.8}{0.740} + \dfrac{0.6 \wedge 1}{0.745} + \dfrac{0 \wedge 0.6}{0.750}$

$= \dfrac{0}{0.730} + \dfrac{0.4}{0.735} + \dfrac{0.8}{0.740} + \dfrac{0.6}{0.745} + \dfrac{0}{0.750}$

(3) $B^c = \dfrac{1-0}{0.730} + \dfrac{1-0.4}{0.735} + \dfrac{1-0.8}{0.740} + \dfrac{1-1}{0.745} + \dfrac{1-0.6}{0.750}$

$= \dfrac{1}{0.730} + \dfrac{0.6}{0.735} + \dfrac{0.2}{0.740} + \dfrac{0}{0.745} + \dfrac{0.4}{0.750}$