2. 消费者决策 = $\max\ U = f(x,y) = x^{\frac{2}{3}}y^{\frac{1}{3}}$ subject to $300 = 10x + 20y$

最适消费 = $x = 20$ $y = 5$

若奶茶涨价，消费决策 = $\max\ U = f(x,y) = x^{\frac{2}{3}}y^{\frac{1}{3}}$ subject to $300 = 20x + 20y$

最适消费条件 = $MRS_{xy} = \frac{2y}{x} = \frac{P_x}{P_y} = \frac{20}{20} = 1$. 最适消费量(10, 5)

可知奶茶价格上升对消费者影响的总效果为 -10 个单位.

总效用 = $U = x^{\frac{2}{3}}y^{\frac{1}{3}} = 20^{\frac{2}{3}}5^{\frac{1}{3}} = 2000^{\frac{1}{3}} \Rightarrow x = 4000^{\frac{1}{3}} = 15.8740401$, $y = 500^{\frac{1}{3}}$

① 替代效果：由 $(x,y) = (20,5)$ 到 $[(4000)^{\frac{1}{3}}, 500^{\frac{1}{3}}]$ x的替代效果 $= 4000^{\frac{1}{3}} - 20$

② 所得效果由 (x,y) 至 $[(4000)^{\frac{1}{3}}, (500)^{\frac{1}{3}}]$ 到 $(10,5)$