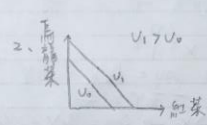
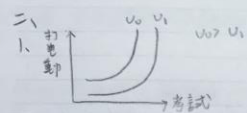


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- | | | | |
|------|-------|-------|-------|
| 1. d | 6. d | 11. c | 16. A |
| 2. a | 7. c | 12. A | |
| 3. d | 8. c | 13. D | |
| 4. a | 9. A | 14. B | |
| 5. c | 10. B | 15. B | |



2. (1) $\text{Max } U = X^{\frac{1}{3}} Y^{\frac{2}{3}}$
 subject to $300 = 20X + 10Y$
 $\text{MRS}_{XY} = \frac{\frac{1}{3} X^{-\frac{2}{3}} Y^{\frac{2}{3}}}{\frac{2}{3} X^{\frac{1}{3}} Y^{-\frac{1}{3}}} = \frac{20}{10} = \frac{1}{2} \times \frac{Y}{X} = \frac{Y}{2X}$
 $\rightarrow 4X = Y \rightarrow X=5, Y=20$

(2) $\text{Max } U = 3X + Y$
 subject to $300 = 20X + 10Y$
 $\text{MRS}_{XY} = \frac{3}{1} > \frac{P_X}{P_Y} = \frac{20}{10} = \frac{2}{1}$
 $\rightarrow X=15, Y=0$

(3) $\text{Max } U = \min(2X, Y)$
 subject to $300 = 20X + 10Y$
 $\rightarrow 2X = Y \rightarrow X=10, Y=20$

3. $\text{Max } U = X^{\frac{1}{3}} Y^{\frac{2}{3}}$ $\text{Max } U = X^{\frac{1}{3}} Y^{\frac{2}{3}}$
 subject to $300 = 20X + 10Y$ subject to $300 = 10X + 10Y$
 $4X = Y \rightarrow X=5, Y=20$ $2X = Y \rightarrow X=10, Y=20$

原 $U = X^{\frac{1}{3}} Y^{\frac{2}{3}} = (5)^{\frac{1}{3}} (20)^{\frac{2}{3}} = (2000)^{\frac{1}{3}}$
 $Y=2X$ 代入 $U = (4X)^{\frac{1}{3}} = (2000)^{\frac{1}{3}}$
 $\rightarrow X = (500)^{\frac{1}{3}}, Y = (4000)^{\frac{1}{3}}$

总效果 = X 增加了 5
 替代效果 = 由 $(5, 20)$ 到 $[(500)^{\frac{1}{3}}, (4000)^{\frac{1}{3}}]$
 X 的替代效果 > 0
 所得效果 = 由 $[(500)^{\frac{1}{3}}, (4000)^{\frac{1}{3}}]$ 到 $(10, 20)$

4. $\text{Max } U = X^{\frac{1}{2}} Y^{\frac{1}{2}}$
 subject to $300 = 20X + 10Y$
 $4X = Y \rightarrow X = 5, Y = 20$
 ① 所得消費曲線 $= 4X = Y$
 ② $Y = 4X$ 代入 $M = 20X + 10Y$
 $\rightarrow M = 60X \rightarrow X = \frac{60}{60}$
 ③ $PCC = Y = 20$
 ④ $\text{Max } U = X^{\frac{1}{2}} Y^{\frac{1}{2}}$
 subject to $300 = P_X X + 10Y$
 $MRS_{XY} = \frac{1}{2} \frac{Y}{X} = \frac{P_X}{10}$
 $\rightarrow Y = \frac{P_X}{2} X \rightarrow 300 = P_X X + 2P_X X = 3P_X X \rightarrow 100 = P_X X \rightarrow X = \frac{100}{P_X}$

