

物品台  
(d)

消費

• day • month

用

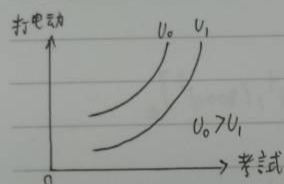
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效

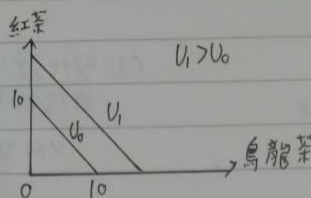
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1. d 2. b 3. d 4. a 5. b 6. d 7. c 8. c 9. a 10. b 11. c 12. d  
13. b 14. c 15. a 16. b

二. 1-a



1-b



效用函數為  $U = X + Y$

2. (1)  $300 = 20X + 10Y$

$U = f(X, Y) = X^{\frac{1}{3}} Y^{\frac{2}{3}}$

$MRS: \frac{\frac{1}{3} X^{-\frac{2}{3}} Y^{\frac{2}{3}}}{\frac{2}{3} X^{\frac{1}{3}} Y^{-\frac{1}{3}}} = \frac{P_X}{P_Y} = \frac{20}{10} = 2$

$\frac{1}{2} X^{-1} Y = 2$

$Y = 4X$

代入  $\Rightarrow X = 5, Y = 20$

(2)  $U = f(X, Y) = 3X + Y$

$MRS: 3 > 2$

$\Rightarrow Y = 0, X = 15$

(3)  $U = f(X, Y) = \min(X, 2Y)$

$\begin{cases} 2X = Y \\ 20X + 10Y = 300 \end{cases}$

$Y = 15$

$X = 7.5$

A:  $\begin{cases} Y = 15 \\ X = 7.5 \end{cases}$

二、

$$3. \quad 20X + 10Y = 300$$

$$U = X^{\frac{1}{3}} Y^{\frac{2}{3}}$$

$$MRS_{xy} = 2 \Rightarrow Y = 4X$$

$$X = 5, Y = 20$$

$$\begin{cases} 10X + 10Y = 300 \\ Y = 2X \end{cases}$$

$$X = 10, Y = 20$$

$$(1) \quad U = X^{\frac{1}{3}} Y^{\frac{2}{3}} = 5^{\frac{1}{3}} \cdot 20^{\frac{2}{3}} = (2000)^{\frac{1}{3}}$$

$$U = X^{\frac{1}{3}} 2X^{\frac{2}{3}} = (2X)^{\frac{1}{3}} = (2000)^{\frac{1}{3}}$$

$$X = 10, Y = 20$$

$$A: X = (1000)^{\frac{1}{3}}, Y = (8000)^{\frac{1}{3}}$$

(2) 所得效果

由  $[(1000), (8000)^{\frac{1}{3}}]$  到  $(10, 20)$

(3) 替代效果

由  $(5, 20)$  到  $[(1000)^{\frac{1}{3}}, (8000)^{\frac{1}{3}}]$

$$4. (1) \quad MRS_{xy} = 2 \quad Y = 4X$$

$$(2) \quad 20X + 10Y = M$$

$$60X = M \quad X = \frac{M}{60}$$

$$(3) \quad Y = \frac{M}{20}$$

$$(4) \quad MRS_{xy} = \frac{\frac{1}{3} X^{-\frac{2}{3}} Y^{\frac{2}{3}}}{\frac{2}{3} X^{\frac{1}{3}} Y^{-\frac{1}{3}}} = \frac{P_x}{10}, Y = \frac{4}{5} P_x X$$

$$300 = P_x X + 10 \left( \frac{4 P_x X}{5} \right) = 9 P_x X \Rightarrow X = \frac{300}{9 P_x}$$