

5. 有附答案

$$6. P_x = 400, P_y = 600, M = 12,000, U = X^{\frac{1}{2}} Y^{\frac{1}{2}}$$

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

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

$$MRS_{xy} = \frac{MU_x}{MU_y} = \frac{P_y}{P_x} \Rightarrow \frac{Y}{X} = \frac{400}{600} \Rightarrow \begin{cases} 3Y = 2X \\ 400X + 600Y = 12,000 \end{cases}$$

$$\begin{cases} Q_x = 15 \\ Q_y = 10 \end{cases}$$

$$② X + Y = 23$$

$$\begin{cases} X + Y = 23 \\ 3Y = 2X \end{cases} \rightarrow$$

$$\begin{cases} X = 13.8 \\ Y = 9.2 \end{cases}$$

$$\rightarrow \text{It's } 400X + 600Y = 11,040 < 12,000$$

$$\Rightarrow \begin{cases} Q_x = 13.8 \\ Q_y = 9.2 \end{cases}$$