

$$\textcircled{1} \quad 400x + 600y = 12000$$

$$V = x^{\frac{1}{2}} y^{\frac{1}{2}}$$

$$MRS_{xy} = \frac{\frac{1}{2} x^{-\frac{1}{2}} y^{\frac{1}{2}}}{\frac{1}{2} y^{-\frac{1}{2}} x^{\frac{1}{2}}} = \frac{400}{600}$$

$$\Rightarrow 3y = 2x$$

$$\Rightarrow x = 15 \quad y = 10$$

②

$$(s, t) \Rightarrow x + y = 23$$

$$x + y = 23$$

$$400x + 600y = 12000$$

$$2x + 3y = 60$$

$$2x + 2y = 46$$

$$y = 14 \quad x = 9.$$