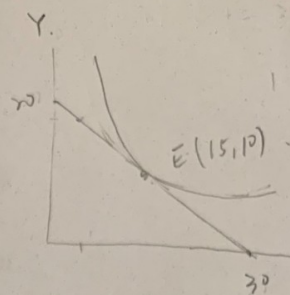


$$\text{Max } U = X^{\frac{1}{2}} Y^{\frac{1}{2}}$$

$$\text{s.t. } 400X + 600Y = 12000$$

$$MRS_{XY} = \frac{\frac{1}{2} X^{-\frac{1}{2}} Y^{\frac{1}{2}}}{\frac{1}{2} X^{\frac{1}{2}} Y^{-\frac{1}{2}}} = \frac{400}{600}$$



$$\Rightarrow X^{-1} Y = \frac{2}{3} \Rightarrow Y = \frac{2}{3} X \quad \text{代入預算式}$$

$$400X + 600\left(\frac{2}{3}X\right) = 12000$$

$$800X = 12000 \quad X = 15, Y = 10. \quad (\text{最適時數})$$

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

$$\text{s.t. } 400X + 600Y = 12000$$

$$X + Y = 23. \quad (X = 23 - Y)$$

$$400(23 - Y) + 600Y = 12000$$

$$9200 - 400Y + 600Y = 12000$$

$$200Y = 2800$$

$$Y = 14, X = 9$$