

$$(A) \quad 60 \times 24 = 1440 \Rightarrow 24 \times 45 = 1080 \Rightarrow 72 \times 45 = 3240 \Rightarrow 225 = 15$$

$$CS = 15 \times 45 = 675 \quad TS = 15 \times 112.5 = 1687.5 \quad DMU = 112.5$$

$$(B) \quad 60 \times 4 = 240 \Rightarrow 4 \times 50 = 200 \Rightarrow 72 \times 50 = 3600$$

$$CS = 0 \quad TS = 0 + 450 = 450 \quad DMU = 0$$

$$(C) \quad \pi = P(q_1 q_2) + P(q_1)(q_2 - 1) - T(q_1) = (60 - q_1)q_1 + (60 - 1)(q_2 - 1) - 3q_1$$

$$= -q_1^2 - q_1^2 - 3q_1 + 60q_1$$

$$\Rightarrow q_1 = 0 \quad q_2 = 20$$

$$\text{此时消费者福利 } h_2 = 0 \quad h_1 = 40 \Rightarrow \pi = 0 \times 10 + 40 \times (20 - 1) = 3960 \Rightarrow 20$$

$$CS = (10 \times 40) + 4000 = 4400$$

$$TS = 400 + 400 = 800$$

$$DMU = 450 - 400 = 50$$

$$(D) \quad \pi = P(q_1)(q_1 + P_2(q_2 - 1)(q_2)) + P(q_2)(q_2 - 1) - T(q_2)$$

$$= (60 - q_1)(q_1) + (60 - q_2)(q_2 - 1) - 3q_2$$

$$= -q_1^2 - q_1^2 - 3q_2 + 60q_2$$

$$\Rightarrow q_1 = 0 \quad q_2 = 20 \quad \pi = 0 \times 10 + 20 \times (20 - 1) = 3960$$

$$q_1 = 15 \quad q_2 = 15$$

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$$\pi = 525 \times 15 + 45 \times (15 - 1) \times 15 = 1125 - 15 = 1110$$