

QUICK ASSIGNMENT:

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Prob 1:

$$P = \underset{p_0}{1} + \underset{p_1}{2x}$$

$$Q = \underset{q_0}{3} + \underset{q_1}{4x}$$

$$\underline{\underline{\text{Eq 1}}} \Rightarrow PQ = p_0 q_0 + (p_0 q_1 + p_1 q_0)x + p_1 q_1 x^2$$
$$= 3 + (4 + 6)x + 8x^2$$

$$\text{Sol}^n = \underline{\underline{3 + 10x + 8x^2}}$$

Traditional Method:

$$(1 \times 3) + (1 \times 4x) + (2x \times 3) + (2x \times 4x)$$

$$\Rightarrow 3 + 4x + 6x + 8x^2$$

$$\text{Sol}^n \Rightarrow \underline{\underline{3 + 10x + 8x^2}}$$

$$\underline{\underline{\text{Eq n}^2}} : PQ = S_2 + (S_1 - S_2 - S_3)x + S_3 x^2$$

$$S_1 = (p_0 + p_1)(q_0 + q_1) = (1 + 2)(3 + 4) = 3 \times 7$$
$$= 21$$

$$S_2 = (p_0 q_0) = (1 \times 3) = 3$$

$$S_3 = (p_1 q_1) = (2 \times 4) = 8$$

$$\therefore PQ = 3 + (21 - 3 - 8)x + 8x^2$$

$$\underline{\underline{\text{Sol}^n}} = \underline{\underline{3 + 10x + 8x^2}}$$

all the methods yield same answer.

Prob: 2

Price & Quantity

$$P = \begin{matrix} 5 & + & 6x \\ P_0 & & P_1 \end{matrix}$$

$$Q = \begin{matrix} 7 & + & 8x \\ Q_0 & & Q_1 \end{matrix}$$

① Traditional Method:

$$\begin{aligned} PQ &= (5 \times 7) + (5 \times 8x) + (6x \times 7) + (6x \times 8x) \\ &= 35 + 40x + 42x + 48x^2 \\ &= 35 + 82x + 48x^2 \end{aligned}$$

$$\text{Sol}^n = 35 + 82x + 48x^2$$

Eqn ①

$$\begin{aligned} PQ &= P_0Q_0 + (P_0Q_1 + P_1Q_0)x + P_1Q_1x^2 \\ PQ &= (5 \times 7) + (5 \times 8 + 6 \times 7)x + (6 \times 8)x^2 \\ &= 35 + (40 + 42)x + 48x^2 \\ &= 35 + 82x + 48x^2 \end{aligned}$$

Eq ②

$$PQ = S_2 + (S_1 - S_2 - S_3)x + S_3x^2$$

$$\begin{aligned} S_1 &= (P_0 + P_1)(Q_0 + Q_1) = [(5 + 6) \times (7 + 8)] \\ &= (11 \times 15) = 165 \end{aligned}$$

$$S_2 = P_0Q_0 = 5 \times 7 = 35$$

$$S_3 = P_1Q_1 = 6 \times 8 = 48$$

$$\begin{aligned} \Rightarrow PQ &= 35 + (165 - 48 - 35)x + 48x^2 \\ &= 35 + 82x + 48x^2 \end{aligned}$$

all the methods yield the same answer.