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1

Qty	1	2	3	4
TC	90	114	141	180
AVC	30	27	27	30
MC	30	24	27	39

36

$TC = TFC + TVC$

$AVC = \frac{TVC}{Q}$ $\quad TVC = AVC \times Q$

$MC = \frac{\Delta TC}{\Delta Q}$

54
18 90
36

$MC = \frac{180-90}{4-1} = \frac{90}{3} = 30$

30 × 4
120
36
156

$90 = TFC + AVC$

$180 = TFC + 120$

$\rightarrow TFC = 60$

54
66
14

$MC = \frac{x-114}{1}$

$\frac{114-90}{2-1} = MC$

$\frac{x-114}{3}$ $\quad 27 = x-114$

$x = 141$

$MC =$

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T-9

(1) $P = 20$ Rs

$TFC = 40\,000$

$x = 40,000 + \frac{60x}{100}$

$100x = 4000000 + 60x$

$40x = 4000000$

$x = 100000$

$TC = 40,000 + \frac{60 \times 20}{100}$

$TFC = 8,40,000$ Rs

π = Profit = TR − TC

$= (P \times \theta) - [TFC + TVC)$

$\pi = (P \times \theta) - [TFC + (AVC \times \theta)]$

$\theta = \frac{TFC + \pi}{P - AVC}$

When $\pi = 0$, (Break Even pt)

$\theta = \frac{TFC}{P - AVC}$ (Break Even Quantity)

↓

(Profit contribution)

(a) $\theta = \frac{8,40,000}{\frac{60}{100} \times 20}$ Price

$= \frac{8,40,000}{12} = 70,000$

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(b) TFC = 12,00,000

$$Q = \frac{12,00,000}{\text{[illegible]}} \times 15$$

$$= 80,000$$

(c) $$\frac{70,000}{} = \frac{12,00,000}{P-5}$$

$$78 - 35 = 120$$

$$7P = 155$$

$$P = 22.14$$

Title Price

(2) x y

$TFC_x + 80,00 = TFC_y$

$$AVC_x = \frac{110}{100} AVC_y$$

$$AVC_x = 1.1\, AVC_y$$

$$AVC_y = \frac{33}{1.1} \times 10 = \boxed{30} \qquad \boxed{AVC_x = 33}$$

$$Qx + \frac{15}{100}$$

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(5) $TC = 200 + 5Q - 0.04Q^2 + 0.001Q^3$

$MC = 5 - 0.08Q + 0.003Q^2$

$TFC = 200$

$ATC = \frac{TC}{Q} = \frac{200}{Q} + 5 - 0.04Q + 0.001Q^2$

$AVC = \frac{TVC}{Q} = 5 - 0.04Q + 0.001Q^2$

$AFC = \frac{200}{Q}$

$\frac{dAVC}{dQ} = -0.04 + 2(0.001)Q = 0$

$2\,\frac{0.001}{1000}Q = \frac{0.04}{100}$

$Q = 20$

(c) $TFC = 500$

(unchanged)