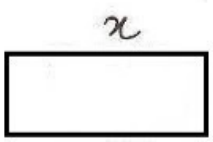
Ex 3.5 Question 4

4 (v)



let length = x units

breadth = y units

area = lb

$= xy$ Sq. units

acc. to condition I

new area = lb

$= (x-5)(y+3)$

$xy - (x-5)(y+3) = 9$

$\Rightarrow xy - xy - 3x + 5y + 15 = 9$

$\Rightarrow -3x + 5y = -6 \quad \cdots (I)$

acc. to con. II

new area = lb

$= (x+3)(y+2)$

$(x+3)(y+2) - (xy) = 67$

$xy + 2x + 3y + 6 - xy = 67$

$\Rightarrow 2x + 3y = 61 \quad \cdots (II)$

$(I) \times 2 + (II) \times 3$

$-6x + 10y = -12$

$6x + 9y = 183$

$19y = 171$

$\Rightarrow y = \frac{171}{19} = 9$

Sub in (I)

$-3x + 5 \times 9 = -6$

$\Rightarrow -3x = -6 - 45$

$\Rightarrow -3x = -51$

$\Rightarrow x = 17$

$\therefore$ length = 17 units

breadth = 9 units