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$$V(X) = E(X^2) - (E(X))^2$$

والتباين:

$$E(X^2) = \sum x^2 \cdot P(X=x)$$

$$= 0^2 \cdot P(X=0) + 1^2 \cdot P(X=1) + 2^2 \cdot P(X=2) + 3^2 \cdot P(X=3) + 4^2 \cdot P(X=4) + 5^2 \cdot P(X=5)$$

$$= 0 + 4 \cdot 0,4 + 9 \cdot 0,1 + 16 \cdot 0,25 + 25 \cdot 0,05$$

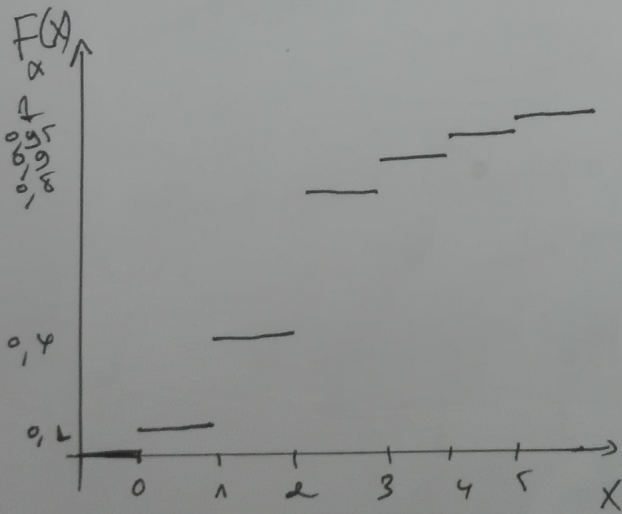
$$= 4,85$$

$$V(X) = 4,85 - (1,85)^2$$

$$V(X) = 1,42$$

٢- دالة التوزيع التراكمية:

$$F_X(x) = P(X \leq x)$$



$$P(X < 4) = P(X \leq 3) = F_X(3) = 0,9$$

$$P(X > 2) = 1 - P(X \leq 2) = 1 - F_X(2)$$

$$= 1 - 0,6 = 0,4$$

$$P(3 \leq X \leq 4) = P(X=4) = 0,05$$

$$x=0, F_X(0) = P(X \leq 0) = P(X=0) = 0,1$$

$$x=1, F_X(1) = P(X \leq 1) = P(X=0) + P(X=1) = 0,1 + 0,3 = 0,4$$

$$x=2, F_X(2) = P(X \leq 2) = P(X=0) + P(X=1) + P(X=2) = 0,1 + 0,3 + 0,4 = 0,8$$

$$x=3, F_X(3) = P(X \leq 3) = P(X=0) + P(X=1) + P(X=2) + P(X=3) = 0,1 + 0,3 + 0,4 + 0,1 = 0,9$$

$$x=4, F_X(4) = P(X \leq 4) = P(X=0) + P(X=1) + P(X=2) + P(X=3) + P(X=4) = 0,1 + \dots + 0,05 = 0,95$$

$$x=5, F_X(5) = P(X \leq 5) = P(X=0) + \dots + P(X=5) = 0,1 + \dots + 0,05 = 1$$