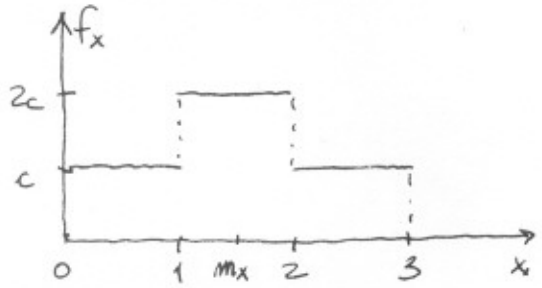
SEI / OVRS 10.3.2006

1)



KER JE $\int_0^3 f_x(x)dx = 1 \Rightarrow$

$c \cdot 1 + 2c \cdot 1 + c \cdot 1 = 4c = 1$

$\underline{\underline{c = 0.25}}$

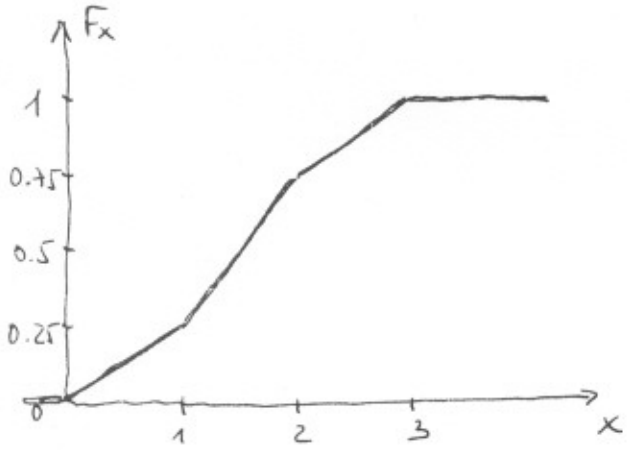
$F_x(x)$: $0 \le x \le 1 \Rightarrow F_x(x) = \int_0^x 0.25\,d\tilde{x} = \underline{\underline{0.25x}}$

$1 \le x \le 2 \Rightarrow F_x(x) = F_x(1) + \int_1^x 0.5\,d\tilde{x} = 0.25 + 0.5x - 0.5 \cdot 1$

$F_x(x) = \underline{\underline{0.5x - 0.25}}$

$2 \le x \le 3 \Rightarrow F_x(x) = F_x(2) + \int_2^x 0.25\,d\tilde{x} = 0.75 + 0.25x - 0.25 \cdot 2$

$F_x(x) = \underline{\underline{0.25x + 0.25}}$



$$E[X] = \int_0^3 x\, f_x(x)\,dx = \int_0^1 x\, 0.25\,dx + \int_1^2 0.5x\,dx + \int_2^3 0.25x\,dx =$$

$$= 0.25 \frac{x^2}{2}\Big|_0^1 + 0.5 \frac{x^2}{2}\Big|_1^2 + 0.25 \frac{x^2}{2}\Big|_2^3 = 0.25 \cdot \frac{1}{2} + 0.5 \frac{3}{2} 0.25 \cdot \frac{5}{2}$$

$$= 0.25 \cdot \frac{12}{2} = \underline{\underline{1.5}}$$

$$E[X^2] = \int_0^3 x^2 f_x(x)\,dx = 0.25 \frac{x^3}{3}\Big|_0^1 + 0.5 \frac{x^3}{3}\Big|_1^2 + 0.25 \frac{x^3}{5}\Big|_2^3$$

$$= 0.25 \frac{1 + 2 \cdot 7 + 19}{3} = 2.833$$

$\text{var}[X] = E[X^2] - E[X]^2 = \underline{\underline{0.583}}$

KOEFICIENT SIMETRIČNOSTI: $\gamma_{1X} = 0$ (SIMETRIČNA PORAZDELITEV)