



Dessin de $F(x)$

$$b) \quad P(X > 2) = P(X=3) + P(X=4) \\ = \frac{3}{10} + \frac{4}{10} = \boxed{\frac{7}{10}}$$

Autre forme :

$$P(X > 2) = 1 - P(X \leq 2) \\ = 1 - F(2) = 1 - \frac{3}{10} = \frac{7}{10}$$

$$P(X < 3) = P(X=1) + P(X=2) = \frac{1}{10} + \frac{2}{10} = \boxed{\frac{3}{10}}$$

$$P(X < 3) = P(X \leq 2) = F(2) = \frac{3}{10}$$

$$c) \quad E(X) = 1 \cdot \frac{1}{10} + 2 \cdot \frac{2}{10} + 3 \cdot \frac{3}{10} + 4 \cdot \frac{4}{10} \\ = \frac{30}{10} = \boxed{3}$$

$$E(X-2) = E(X) - 2 = 3 - 2 = \boxed{1}$$

$$\text{Var}(X) = E(X^2) - (E(X))^2 = 10 - (3)^2 = \boxed{1}$$

$$E(X^2) = 1^2 \cdot \frac{1}{10} + 2^2 \cdot \frac{2}{10} + 3^2 \cdot \frac{3}{10} + 4^2 \cdot \frac{4}{10} = \frac{100}{10} = 10$$