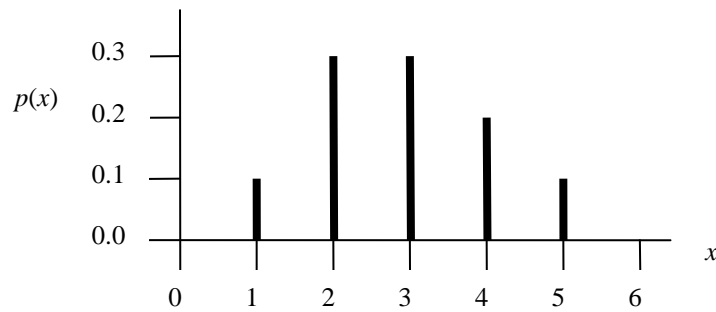


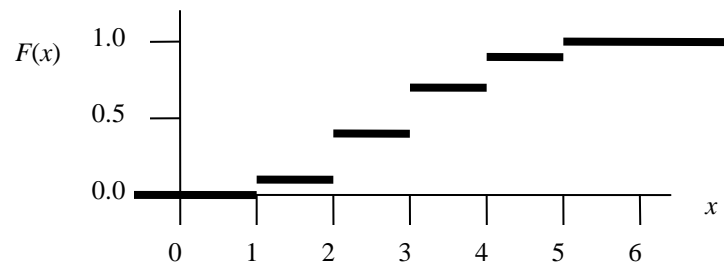
Exercise B-1 Solution file from Kelton/Sadowski/Zupick, *Simulation With Arena*, 6th edition, McGraw-Hill, 2015

(a)



(b)

$$F(x) = \begin{cases} 0.0 & \text{if } x < 1 \\ 0.1 & \text{if } 1 \leq x < 2 \\ 0.4 & \text{if } 2 \leq x < 3 \\ 0.7 & \text{if } 3 \leq x < 4 \\ 0.9 & \text{if } 4 \leq x < 5 \\ 1.0 & \text{if } 5 \leq x \end{cases}$$



(c) $P(1.4 \leq X \leq 4.2) = P(X = 2 \text{ or } X = 3 \text{ or } X = 4) = P(X = 2) + P(X = 3) + P(X = 4) = 0.3 + 0.3 + 0.2 = 0.8.$

(d) Since neither 1.4 nor 4.2 is a possible value for X , the answer is the same as (c).

(e) $E(X) = (1)(0.1) + (2)(0.3) + (3)(0.3) + (4)(0.2) + (5)(0.1) = 2.9.$

(f) $Var(X) = (1 - 2.9)^2(0.1) + (2 - 2.9)^2(0.3) + (3 - 2.9)^2(0.3) + (4 - 2.9)^2(0.2) + (5 - 2.9)^2(0.1) = 1.29$

(g) $StdDev(X) = \sqrt{Var(X)} = \sqrt{1.29} = 1.136.$