1 - Suponha que uma v.a. x tenha uma distribuição com a seguinte f .p.

|  |  |  |
| --- | --- | --- |
| p(x) = | cx | para x = 1, 2, 3, 4, 5 |
|  | 0, | p.o.v |

1. Determine o valor da constante C.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x | 1 | 2 | 3 | 4 | 5 |
| P(x) | c | 2c | 3c | 4c | 5c |

C + 2C + 3C + 4C + 5C = 1 15C = 1 C = 1/15

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x | 1 | 2 | 3 | 4 | 5 |
| P(x) | 1/15 | 2/15 | 3/15 | 4/15 | 5/15 |

1. Calcule: P(X≥3); P(X=3); P(X<4);

P(X≥3)= P(X=3) + P(X=4) + P(X=5) = 3/15 + 4/15 + 5/15 = 12/15

P(X=3) = 3/15

P(X<4) = 1 – P(X>=4) = 1 – [P(X=4)+P(X=5)] = 1- 9/15 = 6/15

F(2) = P(X<=2) = P(x=1) + P(x=2) = 3/15

1. Determine F(x);

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x | 1 | 2 | 3 | 4 | 5 |
| P(x) | 1/15 | 2/15 | 3/15 | 4/15 | 5/15 |

0, x < 1

1/15, 1 ≤ x < 2

F(x) = 3/15, 2 ≤ x < 3

6/15, 3 ≤ x < 4

10/15, 4 ≤ x < 5

1, x ≥ 5

F(6) = P(X≤6) = 1

1. Faça o gráfico da F(x).
2. Calcule E(X) e V(X)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x | 1 | 2 | 3 | 4 | 5 |
| P(x) | 1/15 | 2/15 | 3/15 | 4/15 | 5/15 |

= 15 – (3,67)2 = 1,53

Seja X uma variável aleatória com a seguinte função de probabilidade:

P(X) = , para x = -2, -1, 1, 2.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | -2 | -1 | 1 | 2 |
| P(x) | 4/10 | 1/10 | 1/10 | 4/10 |

Calcule: a) E(X)

b) P(X ≥ 1) = P(X=1) + P(X=2) = 0,1 + 0,4 = 0,5

c) F(x)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | -2 | -1 | 1 | 2 |
| P(x) | 4/10 | 1/10 | 1/10 | 4/10 |

0, x < -2

0,4, -2 ≤ x < -1

F(x)= 0,5, -1 ≤ x < 1

0,6, 1 ≤ x < 2

1 x ≥ 2