

EE325 Practice 1 Answer

1.

a. $\sum_{i=1}^8 a + b \sum_{i=1}^8 x_i$

b.

$$\sum_{y=1}^7 f(x-y) = f(x-0) + f(x-1) + f(x-2) + f(x-3) + f(x-4) + f(x-5) + f(x-6) + f(x-7)$$

c. $1^3 + 2^3 + 3^3 + 4^3 + 5^3$

d. $\sum_{x=1}^2 \sum_{y=2}^3 (3x+y) = 28$

2

a. $C = \frac{1}{5}$

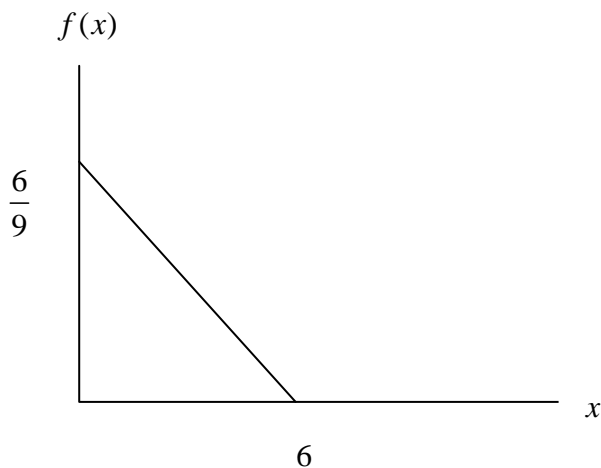
b. $P(X \leq 2) = 0.5$

c. $P(-2 \leq X \leq 3) = 0.9$

d. $P(X \geq 1) = 0.7$

3

a. $f(x) = -\frac{1}{9}x + \frac{6}{9}, 0 \leq x \leq 3$



b. $P(2 \leq x \leq 3) = \frac{7}{18}$

c. $P(X \geq 1) = \frac{8}{9}$

d. $E(X) = 2$

4
a.

		X					
		1	2	3	4	5	6
Y	0	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
	1	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$

b. & c.

$$f(X = 1) = \frac{2}{12}$$

$$f(X = 2) = \frac{2}{12}$$

$$f(X = 3) = \frac{2}{12}$$

$$f(X = 4) = \frac{2}{12}$$

$$f(X = 5) = \frac{2}{12}$$

$$f(X = 6) = \frac{2}{12}$$

$$f(Y = 0) = \frac{6}{12}$$

$$f(Y = 1) = \frac{6}{12}$$

d.

$$f(X = 1 | Y = 1) = \frac{1}{6}$$

⋮

$$f(X = 6 | Y = 1) = \frac{1}{6}$$

e.

$$E(X|Y=1) = \sum_x xf(x|Y=1) = \frac{21}{6}$$

f.

$$Var(X | Y = 1) = \frac{35}{12}$$

5. Discuss in class