STA 032 Homework 3

Hardy Jones
999397426
Professor Melcon
Winter 2015

§ 2.4 5 (1)

x	$f(x)$
1	0.7
2	0.15
3	0.1
4	0.03
5	0.02

(2)

$$P(X \leq 2) = P(X = 1) + P(X = 2) = 0.7 + 0.15 = 0.85$$

(3)

$$P(X > 3) = P(X = 4) + P(X = 5) = 0.03 + 0.02 = 0.05$$

(4)

$$\begin{aligned}\mu_X &= x_1 f(x_1) + x_2 f(x_2) + x_3 f(x_3) + x_4 f(x_4) + x_5 f(x_5) \\ &= 1(0.7) + 2(0.15) + 3(0.1) + 4(0.03) + 5(0.02) \\ &= 0.7 + 0.3 + 0.3 + 0.12 + 0.1 \\ &= 1.52\end{aligned}$$

(5)

$$\begin{aligned}\sigma_X &= \sqrt{x_1^2 f(x_1) + x_2^2 f(x_2) + x_3^2 f(x_3) + x_4^2 f(x_4) + x_5^2 f(x_5) - \mu_X^2} \\ &= \sqrt{1^2(0.7) + 2^2(0.15) + 3^2(0.1) + 4^2(0.03) + 5^2(0.02) - 1.52^2} \\ &= \sqrt{1(0.7) + 4(0.15) + 9(0.1) + 16(0.03) + 25(0.02) - 2.3104} \\ &= \sqrt{0.8696} \\ &\approx 0.93\end{aligned}$$

8 (1)
(2)
(3)
(4)
(5)

	15	(1)
		(2)
		(3)
		(4)
	24	(1)
		(2)
		(3)
		(4)
		(5)
		(6)
		(7)
§ 2.5	8	(1)
		(2)
		(3)
		(4)
		(5)
	10	(1)
		(2)