

Chapter 09 연습문제 정답

1.

$\bar{X}$ 의 확률분포

$\bar{X}$	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
$f_{\bar{X}}(x)$	0.028	0.056	0.083	0.111	0.139	0.166	0.139	0.111	0.083	0.056	0.028

$$E(\bar{X}) = 3.5$$

$$Var(\bar{X}) = 1.46$$

2.

(a) $\{1,1\} \{1,2\} \{1,3\} \{1,4\} \{2,1\} \{2,2\} \{2,3\} \{2,4\}$

$\{3,1\} \{3,2\} \{3,3\} \{3,4\} \{4,1\} \{4,2\} \{4,3\} \{4,4\}$

(b) 각 표본의 평균: 1, 1.5, 2, 2.5, 3, 3.5, 4

(c)

$\bar{x}$	1	1.5	2	2.5	3	3.5	4
$p_{\bar{X}}$	$\frac{1}{16}$	$\frac{2}{16}$	$\frac{3}{16}$	$\frac{4}{16}$	$\frac{3}{16}$	$\frac{2}{16}$	$\frac{1}{16}$

(d) $\mu_{\bar{X}} = 2.5, \sigma_{\bar{X}}^2 = 0.625$

3.

(a) $\{1,2\} \{1,3\} \{1,4\} \{2,1\} \{2,3\} \{2,4\}$

$\{3,1\} \{3,2\} \{3,4\} \{4,1\} \{4,2\} \{4,3\}$

(b) 각 표본의 평균 : 1.5, 2, 2.5, 3, 3.5

(c)

$\bar{x}$	1.5	2	2.5	3	3.5
$p_{\bar{X}}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{2}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

(d) $\mu_{\bar{X}} = 2.5, \sigma_{\bar{X}}^2 = 0.4167$

4.

(a) 0.2119

(b) 약 0.0793

(c) 0.0228

5. 25.987

6. 0.0124

7. 36

8. 0.53275

9.

(a) $\bar{X} \sim N(100, 0.6^2)$

(b) 0.9876

(c) 0.0122

10. 0.9690

11. 0.9544

12.

(a) 0.5328

(b) $\bar{X} \sim N(198, 2.25)$

(c) 0.8164

13. 약 2.0888

14.

(a) $t(15)$

(b) 약 0.975

(c) 약 0.4

15.

(a) 약 0.9983

(b) 약 0.9773

(c) 약 0.875

16.

(a) 약 0.0908

(b) 약 0.0507

17.

(a) 5.024

(b) 약 0.75

18.

- (a) $V \sim \chi^2(7)$
- (b) $\frac{243}{7} \approx 33.4286$
- (c) 10.85
- (d) 70.35

19.

- (a) $V \sim \chi^2(14)$ 이다.
- (b) 28.7
- (c) 약 0.12
- (d) 약 11.73
- (e) 약 42.29

20.

- (a) 약 0.2812
- (b) 약 0.3865
- (c) 약 0.5222

21.

- (a) 약 0.0778
- (b) 약 0.0162

22.

- (a) $\hat{p} \approx N(0.11, 0.0221^2)$
- (b) 0.0351
- (c) 0.1463545

23.

- (a) $N(5, 0.721^2)$
- (b) 약 0.9504

24. 약 0.7184

25.

- (a) 약 3.139
- (b) $t(24)$
- (c) 약 0.0475
- (d) 약 12.11

26. 약 12.16

27.

(a) 약 2.0347

(b) $t(16)$

(c) 0.025

(d) 약 2.046

28.

(a) 19

(b) $t(19)$

(c) 약 0.14

(d) 약 8.9

29. 약 0.1722

30.

(a) $N(0, 0.0268^2)$

(b) 0.1314

(c) 0.044086

31. 0.01

32. 2.064