

## 补充练习题参考答案

## 第四章补充练习题

## 一、填空题

1. B; 2. C; 3. B; 4. A; 5. A; 6. B; 7. C; 8. A;

9. B; 10. C; 11.  $E(X^2)=18.4$ ;

$$12. f_X(x) = \begin{cases} \frac{1}{2} & 2 \leq x \leq 4 \\ 0 & \text{其它} \end{cases}, P\{X=2\}=0, P\{1 < X < 3\} = \frac{1}{2};$$

$$13. E(X)=2, D(X)=2; 14. E(X)=\frac{13}{4}, D(X)=\frac{3}{16}, E(Y)=1, D(Y)=\frac{3}{4};$$

$$15. E(X)=0.785, \sigma(X)=0.434, E(Y)=-0.785, \sigma(Y)=0.434;$$

$$16. \begin{array}{c|cccc} X & 0 & 1 & 2 & 3 \\ \hline p & \frac{27}{125} & \frac{54}{125} & \frac{36}{125} & \frac{8}{125} \end{array}, F_X(x) = \begin{cases} 0 & x < 0 \\ 27/125 & 0 \leq x < 1 \\ 81/125 & 1 \leq x < 2 \\ 117/125 & 2 \leq x < 3 \\ 1 & x \geq 3 \end{cases} E(X) = \frac{6}{5};$$

$$17. E(X) = \frac{1}{p}, D(X) = \frac{1-p}{p^2};$$

$$18. E(X)=0.5, D(X)=0.432;$$

$$19. E(X)=1.056, D(X)=0.7772; 20. E(X)=1;$$

$$21. E(Y) = \frac{\pi}{12}(b^2 + ab + a^2); 22. E(X)=44.64(\text{分});$$

$$23. f_Z(z) = \frac{1}{\sqrt{10\pi}} e^{-\frac{z^2}{10}} \quad z \in R; 24. D(Y) = \frac{8}{9}; 25. B; 26. D; 27. A;$$

$$28. E(X)=E(Y)=\frac{7}{6}, Cov(X,Y)=-\frac{1}{36}, \rho_{XY}=-\frac{1}{11}, D(X+Y)=\frac{5}{9};$$

$$29. (1) f(x,y) = \begin{cases} \frac{1}{\pi r^2} & x^2 + y^2 \leq r^2 \\ 0 & \text{其它} \end{cases}$$

$$f_X(x) = \begin{cases} \frac{2\sqrt{r^2-x^2}}{\pi r^2} & |x| \leq r \\ 0 & \text{其它} \end{cases} \quad f_Y(y) = \begin{cases} \frac{2\sqrt{r^2-y^2}}{\pi r^2} & |y| \leq r \\ 0 & \text{其它} \end{cases}$$

$$(2) \rho_{XY}=0 \quad X \text{ 与 } Y \text{ 不相关} \quad (3) X \text{ 与 } Y \text{ 不独立};$$

$$30. D(X+Y)=85, D(X-Y)=37; 31. \begin{pmatrix} \frac{11}{144} & -\frac{1}{144} \\ -\frac{1}{144} & \frac{11}{144} \end{pmatrix}; 32. \rho_{XY} = -\frac{1}{2}.$$