

8.1절 확인문제

01. (a) 24 (b) 56

02. 60

03. 240

04. (a) 10 (b) 21

05. (a) $n = 11$ (b) $r = 1$ 또는 $r = 3$

06. 60

8.2절 확인문제

01. (거짓)

02. (a) $(2x - 3y)^4 = 16x^4 - 96x^3y + 216x^2y^2 - 216xy^3 + 81y^4$

(b) $\left(t - \frac{2}{t}\right)^5 = t^5 - 10t^3 + 40t - \frac{80}{t} + \frac{80}{t^3} - \frac{32}{t^5}$

03. 32

04. (a) $2^{14} - 1$ (b) -1

05. (a) $(2x - 5y)^5 = 32x^5 - 400x^4y + 2000x^3y^2 - 5000x^2y^3 + 6250xy^4 - 3125y^5$

(b) $(a + 3y)^4 = a^4 + 12^3y + 54a^2y^2 + 108ay^3 + 81y^4$

8.3절 확인문제

01. (a) $\frac{1}{2}$ (b) $\frac{1}{3}$

02. $\frac{4}{7}$

03. (a) $\frac{2}{3}$ (b) $\frac{1}{2}$

04. $\frac{5}{7}$

05. $\frac{2}{5}$

06. $\frac{5}{16}$

8.4절 확인문제

01. (거짓)

02. 179.75

03. $V(X) = \frac{74}{5}$, $\sigma(X) = \sqrt{\frac{74}{5}}$

8.5절 확인문제

01. $E(X) = \frac{5}{4}$, $V(X) = \frac{45}{112}$, $\sigma(X) = \sqrt{\frac{45}{112}}$

02. $E(X) = 0$, $V(X) = \frac{3}{5}$, $\sigma(X) = \sqrt{\frac{3}{5}}$

03. 0.8413

04. 0.1359

8.6절 확인문제

01. 0.0228

02. [498.71, 501.29]

8장 연습문제

01. (a) 192 (b) 672

02. 720개

03. (a) 생략

04. $n = 11$

05. (a) $\frac{1}{55}$ (b) $\frac{2}{11}$ (c) $\frac{3}{11}$

06. $\frac{289}{800}$

07. $\frac{49}{120}$

08. (a) 생략 (b) 생략

09. $\frac{15}{128}$

10. 생략

11. $E(X^2) = 109$

12. $E(2X+1) = 6$, $\sigma(2X+1) = \sqrt{3}$

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import numpy as np

X = np.array([1,2,3,4])
PX = np.array([1.0/8.0, 3.0/8.0, 3.0/8.0, 1.0/8.0])

EX = np.sum(X*PX)
VX = np.sum(((X-EX)**2)*PX)
sigmaX = np.sqrt(VX)
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EY = 2*EX+1
VY = 4*VX
sigmaY = 2*sigmaX

print("E(Y)=",EY)
print("sigma(Y)=",sigmaY)
```

13. $a = \frac{2}{3}, b = \frac{1}{3}$

14. 약 11명

15. 0.1359

16. $E(\overline{X^2}) = \frac{20}{3}$

17. 약 159개

18. 0.392