

MSE, 미적분학

## [연습문제 답안 이용 안내]

- 본 연습문제 답안의 저작권은 한빛아카데미(주)에 있습니다.
- 이 자료를 무단으로 전제하거나 배포할 경우 저작권법 136조에 의거하여 최고 5년 이하의 징역 또는 5천만원 이하의 벌금에 처할 수 있고 이를 병과(併科)할 수도 있습니다.

## Chapter 05 연습문제 답안

### 《Section 5.2》

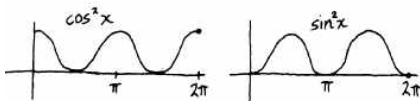
1. (a) 30 (b) 4 (c) 0

2. (a)  $\int_1^5 \ln x dx$   
 (b)  $-\int_{1/2}^1 \ln x dx$   
 (c)  $\int_1^7 \ln x dx - \int_{1/3}^1 \ln x dx$

3. (a)  $\int_1^3 x^2 dx$   
 (b)  $\int_0^3 x^3 dx$   
 (c)  $\int_{-2}^0 x^3 dx$

4. (a) 음수  
 (b) 양수

5. (a) 참  
 (b) 거짓  
 (c) 참

6. (a) 

$$\begin{aligned} \text{(b)} \quad \int_0^{2\pi} \sin^2 x dx &= \int_0^{2\pi} (1 - \cos^2 x) dx \\ \int_0^{2\pi} \sin^2 x dx &= 2\pi - \int_0^{2\pi} \cos^2 x dx = \pi \end{aligned}$$

7. (a)  $A_4$

(b)  $A_5 = \frac{1}{2}A_1$

8. (a) 10

(b)  $\frac{10}{4}$

9.  $2 \int_{-R}^R \sqrt{R^2 - x^2} dx$

## 《Section 5.3》

1.  $39/2$

2.  $2$

3.  $80/3$

4.  $1/4$

5.  $\frac{1}{4}\pi$

6.  $\frac{1}{\pi}$

7.  $\ln 5$

8.  $\frac{5}{432}$

9.  $10\sqrt{5} - 2$

10.  $\frac{52}{3}$

11.  $\frac{1}{2}(\ln 9 - \ln 7)$

12.  $28$

13.  $1$

14.  $3$

15.  $\frac{318}{7}$

16.  $\frac{2465}{7}$

17.  $\frac{5}{8}[(\frac{4}{5})^8 - (\frac{2}{5})^8]$

18.  $\frac{1}{3}(\ln 4 - \ln 5)$

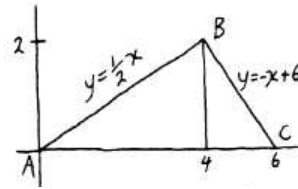
19.  $-10/\pi$

20.  $-\frac{4}{225}$

21.  $-\frac{1}{3}$

22. (a)  $\frac{1}{2} \times 6 \times 2 = 6$

(b)  $\int_0^4 \frac{1}{2}x dx + \int_4^6 (-x+6)dx = 6$



23.  $2/\pi$

24. (a)  $\frac{1}{4}x^4 + C$

(b)  $15/4$

25. 265

26.  $37/2$

27. (a)  $\int_0^2 (x^3 - 6x^2 + 8x)dx - \int_2^4 (x^3 - 6x^2 + 8x)dx = 8$

(b)  $\int_0^5 \sqrt{9-x} dx - 10 = \frac{8}{3}$

## 《Section 5.4》

1. (a) 1.0894134 (b) 0.2639393  
(c) 0.2543498 (d) 0.8449433
2. 0.5

## 《Section 5.6》

1.  $1/324$
2.  $\infty$
3.  $-1/8$
4.  $\infty$
5.  $\infty$
6. 답 없음
7.  $\pi/2$
8.  $1/2$
9.  $\frac{3}{2}\sqrt[3]{4}-\frac{3}{2}$
10.  $\infty$
11. 발산
12. 발산
13. 2
14.  $\infty$
15.  $-\pi/2$
16. -1

## 《복습문제》

1. (a)  $\frac{2}{7}$

(b)  $\infty$

(c)  $\frac{1}{5}$

(d)  $\frac{16}{3}$

(e)  $\frac{2}{9}(10\sqrt{10} - 7\sqrt{7})$

(f)  $\frac{1}{3}e^{-6}$

(g) 0

## (h) 9

(i)  $2 - 1/e - 1/e^3$

(j)  $310\frac{1}{3}$

(k)  $4\ln 2$

(1) 2

2. (a)  $-\frac{19}{2}$

(b)  $-\frac{19}{2}$

3. 1.069769

4.  $I = II$

5.  $\frac{1}{e-1}$

6. 16

7. (a) 0

(b)  $2 \int_0^3 f(x) dx$