

CHAPTER 06

6.1

(a) $\frac{16\sqrt{5}}{3}$

(b) $2\sqrt{5}$

6.2

(a) $-\frac{5}{6}$

(b) $\frac{8}{5}$

6.3

(a) 22

(b) 0

6.4

(a) $\frac{5}{12}$

(b) $-\frac{5}{12}$

6.5

$$\oint_C xy \, dx + x^2 \, dy = \frac{1}{2}$$

6.6

(a) $\int_C x \, dx + xy \, dy = -\frac{1}{6}$

(b) $\int_{-C} x \, dx + xy \, dy = \frac{1}{6}$

6.7

$$\int_C x \, dx + y \, dy + z \, dz = 2\pi^2$$

6.8

$$W = \frac{27}{2}$$

6.9

$$W = 2$$

6.10

$$W = 0$$

6.11

(a) -2

(b) $-\frac{8}{3}$

6.12

(a) $\int_C xy^2 \, dx + x^2 y \, dy = 8$

(b) $\int_C -2xy \, dx - x^2 \, dy = -8$

6.13

$$\int_C (y - z) \, dz + (x + y) \, dy + (-x + z) \, dx = \frac{3}{2}$$

6.14

(a) $\phi(x, y) = \frac{1}{2}x^2 - xy + \frac{1}{2}y^2 + C$

(b) $\phi(x, y) = \frac{1}{3}x^2 + x^2y^2 + x - y^2 - 3y + C$

(c) $\phi(x,y)=x^2y+xz+\frac{1}{2}z^2+yz-\frac{1}{2}z^2+c=x^2y+xz+yz+C$

6.15

$$\iint_R f(x,y)dA=\frac{1}{10}$$

6.16

$$\iint_R f(x,y)dA=\frac{1}{10}$$

6.17

$$\iint_R (x+y^2)\,dx\,dy=\frac{\pi}{8}$$

6.18

$$\oint_C (x^2+y^2)\,dx+(2x-y)\,dy=\frac{11}{30}$$

6.19

$$3\pi$$

6.20

$$-\frac{1}{2}$$

6.21

$$\frac{13}{12}$$

6.22

$$\text{생략}$$