

13.5 | 연습문제 정답

01. (a) $2\sqrt{2}$ (b) $\frac{11\sqrt{14}}{27}$
 (c) $\frac{5}{8}\pi$ (d) $\frac{112}{3}$
02. $\frac{3}{4}$
03. (a) $S: x = \sqrt{2} \sin \phi \cos \theta, y = \sqrt{2} \sin \phi \sin \theta, z = \sqrt{2} \cos \phi,$
 $\frac{\pi}{4} \leq \phi \leq \frac{\pi}{2}, 0 \leq \theta \leq 2\pi$
 (b) $2\sqrt{2}\pi$
04. (a) $S: x = r \cos \theta, y = r \sin \theta, z = \sqrt{3}r, 0 \leq \theta \leq 2\pi, \frac{1}{\sqrt{3}} \leq r \leq \frac{4}{\sqrt{3}}$
 (b) 10π
05. (a) $S: x = r \cos \theta, y = r \sin \theta, z = r^2, 0 \leq \theta \leq 2\pi, 0 \leq r \leq 2$
 (b) $\frac{\pi}{6} \left(17^{\frac{3}{2}} - 1 \right)$
06. $\frac{2}{3}$
07. (a) -128 (b) -2π
 (c) -4 (d) -3π

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

09. 144π

10. (a) $\left(\frac{3a}{5}, \frac{a}{5}, \frac{a}{5}\right)$ (b) $\left(\frac{a}{3}, \frac{a}{3}, \frac{a}{3}\right)$

11. $\left(\frac{a}{2}, \frac{a}{2}, \frac{a}{2}\right)$

12. $\left(1.5, 0, \frac{54}{9\pi}\right)$

13. $\frac{3\sqrt{5}k}{2}\pi$

14. (a) $\frac{8a^4k}{3}\pi$ (b) $\frac{20a^4k}{3}\pi$

15. (a) $x = u, y = f(u)\cos v, z = f(u)\sin v$ ($a \leq u \leq b, 0 \leq v \leq 2\pi$)
 (b) 생략