

11.4 | 연습문제 정답

2025. 3. 10 업데이트

01. (a) $D_{\mathbf{u}} f(-1, 2) = \frac{22}{5}$

(b) $D_{\mathbf{u}} f(1, 1) = -\frac{7}{10}$

(c) $D_{\mathbf{u}} f(-2, 1, 3) = \frac{52}{3}$

(d) $D_{\mathbf{u}} f(3, 4, 0) = -\frac{1}{5\sqrt{3}}$

02. $\mathbf{u} = \left\langle -\frac{3}{\sqrt{10}}, \frac{1}{\sqrt{10}} \right\rangle$

03. $D_{\mathbf{u}} f\left(0, \frac{\pi}{3}\right) = \frac{\sqrt{3}}{2}$

04. $D_{\mathbf{u}} f(1, 1, 1) = \frac{2}{3}$

05. $\mathbf{u} = \langle 1, 1 \rangle$

06. 최대로 감소하는 방향 : $\left\langle \frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}} \right\rangle$

최소변화율 : $-\|\nabla T(1, 1, 1)\| = -200e^{-3}\sqrt{3}$

07. $\langle 2, 2, 1 \rangle$

08. $D_{\mathbf{u}} f(2, 4) = -\frac{41}{5}$

09. 생략

10. (a) $\nabla f(P) = \langle 10, 15 \rangle$

(b) 생략