

Find the vector of length 6 in the direction of $\mathbf{u} = \mathbf{i} + 2\mathbf{j} - 2\mathbf{k}$. [99中山機電III 1 (c)]

$$[\text{解}] 6 \frac{\mathbf{u}}{|\mathbf{u}|} = 6 \frac{\mathbf{i} + 2\mathbf{j} - 2\mathbf{k}}{\sqrt{1^2 + 2^2 + (-2)^2}} = 6 \frac{\mathbf{i} + 2\mathbf{j} - 2\mathbf{k}}{3} = 2\mathbf{i} + 4\mathbf{j} - 4\mathbf{k}$$