

Exercise 2

A vector \mathbf{v} has components $v_x = 1$, $v_y = 2$, $v_z = -5$. A vector \mathbf{w} has components $w_x = 3$, $w_y = -1$, $w_z = 1$. Evaluate:

- (a) $(\mathbf{v} \cdot \mathbf{w})$
- (b) $[\mathbf{v} \times \mathbf{w}]$
- (c) The length of \mathbf{v}
- (d) $(\delta_x \cdot \mathbf{v})$
- (e) $[\delta_x \times \mathbf{w}]$
- (f) $\phi_{\mathbf{vw}}$
- (g) $[\mathbf{r} \times \mathbf{v}]$, where \mathbf{r} is the position vector.