

Check your understanding

14. Does the cross product satisfy the distributive property $\mathbf{a} \times (\mathbf{b} + \mathbf{c}) = (\mathbf{a} \times \mathbf{b}) + (\mathbf{a} \times \mathbf{c})$?
- (a) Yes.
 - (b) No.
15. Does the cross product satisfy the associative property $(\mathbf{a} \times \mathbf{b}) \times \mathbf{c} = \mathbf{a} \times (\mathbf{b} \times \mathbf{c})$?
- (a) Yes.
 - (b) No.

Answers: 14 (a), 15 (b).

Explanation for 14: You can check this by expanding both sides in components, similarly to the proof of the distributive property for the dot product.

Explanation for 15: For example $(\mathbf{i} \times \mathbf{i}) \times \mathbf{j} = \mathbf{0}$, but $\mathbf{i} \times (\mathbf{i} \times \mathbf{j}) = -\mathbf{j}$.