

在下列等式中正确的是()

(A) $a \cdot (b \times c) = a \cdot (c \times b)$ (B) $a \cdot (b \times c) = (a \cdot b) \cdot c$

(C) $a \cdot (b \times c) = (a \times b) \times c$ (D) $a \cdot (b \times c) = (a \times b) \cdot c$

[解析] 两个向量的内积是一个数,两个向量的外积是一个向量,
选项(B), (C)均不正确.

选项 (A)不正确:

$$b \times c = -c \times b \Rightarrow a \cdot (b \times c) = -a \cdot (c \times b)$$

故(D)正确.

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[解析]选项(D)正确:

设 $a = (a_1, a_2, a_3)$, $b = (b_1, b_2, b_3)$, $c = (c_1, c_2, c_3)$, 则有:

$$(a \times b) \cdot c = \begin{vmatrix} a_1 & a_2 & a_3 \\ b_1 & b_2 & b_3 \\ c_1 & c_2 & c_3 \end{vmatrix} = \begin{vmatrix} b_1 & b_2 & b_3 \\ c_1 & c_2 & c_3 \\ a_1 & a_2 & a_3 \end{vmatrix} = (b \times c) \cdot a = a \cdot (b \times c)$$