

$$8) \det(a, b, c) = (a \times b) \cdot c$$

$$x \times (y \times z) = (x \cdot z) \cdot y - (x \cdot y) \cdot z$$

$$(a \times b) \times (c \times d) = [\det(a, c, d)] \cdot b - [\det(b, c, d)] \cdot a$$

$$(a \times b) \times (c \times d) = [\det(a, b, d)] \cdot c - [\det(a, b, c)] \cdot d$$

$$x \times (y \times z) = (x \cdot z) \cdot y - (x \cdot y) \cdot z$$

\downarrow \downarrow \downarrow

$$\begin{aligned} (a \times b) \times (c \times d) &= [(a \times b) \cdot d] \cdot c - [(a \times b) \cdot c] \cdot d \\ &= [\det(a, b, d)] \cdot c - [\det(a, b, c)] \cdot d \end{aligned}$$

$$x \times (y \times z) = (x \cdot z) \cdot y - (x \cdot y) \cdot z$$

~~$$(a \times b) \times (c \times d) = [(c \times d) \cdot a] \cdot b - [(c \times d) \cdot b] \cdot a$$~~
$$\begin{aligned} (a \times b) \times (c \times d) &= [\det(a, c, d)] \cdot b - [\det(b, c, d)] \cdot a \end{aligned}$$