Opti 501   **Solutions**

Problem 17) Let $C \times D = E$. Then, from Problem 13, $(A \times B) \cdot E = A \cdot (B \times E)$. Using Problem 15, we will have $B \times E = B \times (C \times D) = (B \cdot D)C - (B \cdot C)D$. Therefore,

$$(A \times B) \cdot (C \times D) = A \cdot [(B \cdot D)C - (B \cdot C)D] = (A \cdot C)(B \cdot D) - (A \cdot D)(B \cdot C).$$