Problem 0.4

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1 Problem

If A $\subset$ B and A $\subset$ C, then A $\subset$ B $\cap$ C.

2 Solution

For some arbitrary element x $\in$ A, x $\in$ B and x $\in$ C using the definition of subsets. Since x is in both B and C, x is in B $\cap$. Since x was chosen arbitrarily, it can be generalized to all elements in A. Therefore we have proved that, if A $\subset$ B and A $\subset$ C, then A $\subset$ B $\cap$ C.