

## Answer on Question #79106–Math– Discrete Mathematics

### Question

$(A \setminus B) \cup C = A \setminus (B \cap C)$  for any three sets  $A, B$  and  $C$ . Is the statement true or false? Give justification in support of your answer.

### Solution

Consider, for example, sets  $A = \{1; 2; 3; 4\}, B = \{1; 2; 3\}, C = \{2; 5\}$ .

Note that  $A \setminus B = \{4\}, (A \setminus B) \cup C = \{2; 4; 5\}, B \cap C = \{2\}, A \setminus (B \cap C) = \{1; 3; 4\}$ .

In this case  $(A \setminus B) \cup C \neq A \setminus (B \cap C)$ , hence the statement is false.

**Answer:** the statement is false.