

$$\overline{A}BC + A\overline{B}C + AB\overline{C} + ABC$$

Factoring **BC** out of 1st and 4th terms

$$BC(\overline{A} + A) + A\overline{B}C + AB\overline{C}$$

Applying identity **A + \overline{A} = 1**

$$BC(1) + A\overline{B}C + AB\overline{C}$$

Applying identity **1A = A**

$$BC + A\overline{B}C + AB\overline{C}$$

Factoring **B** out of 1st and 3rd terms

$$B(C + A\overline{C}) + A\overline{B}C$$

Applying rule **A + $\overline{A}B$ = A + B** to the $C + A\overline{C}$ term

$$B(C + A) + A\overline{B}C$$

Distributing terms

$$BC + AB + A\overline{B}C$$

Factoring **A** out of 2nd and 3rd terms

$$BC + A(B + \overline{B}C)$$

Applying rule **A + $\overline{A}B$ = A + B** to the $B + \overline{B}C$ term

$$BC + A(B + C)$$

Distributing terms

$$BC + AB + AC$$

or

Simplified result

$$AB + BC + AC$$