Find the sum of product expansion of the Boolean Function given by

$$F(x, y, z) = x(y + z')$$

by using identities and also by using table.

Solution.

x	y	z	$x(y + z')$
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

Solution.

We take rows from truth table where
$$x(y + z') = 1$$

These rows are:

$$x = 1\,; y = 0\,; z = 0 \;\Rightarrow\; xy'z'$$

$$x = 1\,; y = 1\,; z = 0 \;\Rightarrow\; xyz'$$

$$x = 1\,; y = 1\,; z = 1 \;\Rightarrow\; xyz$$

Answer:

$$xy'z' + xyz' + xyz$$