$X + XZ = X$

$X.(\overline{X} + Y) = X \cdot Y$

$XY + YZ + \overline{Y}Z = XY + Z$

First simplify $(X + Y)(X + \overline{Y})$

Find the complement of $\overline{A}B + C\overline{D}$, (b) $AB + CD = 0$

$XYZ + X\overline{Y}Z + XY\overline{Z}$

$X = ABC + \overline{A}B + AB\overline{C}$

$X = \overline{A}B\overline{C} + A\overline{B}\,\overline{C} + \overline{A}\,\overline{B}\,\overline{C} + \overline{A}\,\overline{B}\,\overline{C}$

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

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

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