Section 1.10: More LOL

DeMorgan's:

$$\overline{AB} = \overline{A} + \overline{B}$$

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

example: use DeMorgan's to rewrite:

① $\overline{B + C}$ = $\overline{B}\,\overline{C}$

② $\overline{\overline{B} + C}$ = $B\,\overline{C}$

③ $\overline{\overline{B} + \overline{C}}$ = $B\,C$

④ $\overline{A\,\overline{C}}$ = $\overline{A} + C$

⑤ $\overline{A}\,C$ = $\overline{A + \overline{C}}$

⑥ $\overline{☺ + ☹}$ = $☺\,☹$

when will we see this in code?

if (x=5 or y=2) then do _____
                 else do _____ ⤸

under what conditions does this occur?

when (x=5 or y=2) is FALSE

in other words, when (x≠5 and y≠2) is TRUE

_____

Distributive

$$A(B + C) = AB + AC$$

$$A(B+C) = AB + AC$$

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

examples: rewrite the following using the distributive law:

① $\overline{C}(A+C) = \overline{C}A + \overline{C}C$

② $(A+B)(A+\overline{B}) = A + B\overline{B}$

③ $\overline{B} + \overline{A}\,\overline{C} = (\overline{B} + \overline{A})(\overline{B} + \overline{C})$

④ $\overline{AB}(B+\overline{C}) = \overline{AB}B + \overline{AB}\,\overline{C}$