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* not the whole expression

3. Find the complement of the following expression

(a) $(A' + B)C'$

(b) $(AB' + C)D' + E$

$(A' + B)' + (C')'$

$(A')' \cdot (B')' + C$

$AB' + C$

$[(AB' + C)D' + E]'$

$[(AB' + C)D']' E'$

$[(AB' + C)' + D] E'$

$[(AB')' C' + D] E'$

$[(A' + B)C' + D] E'$

$[A'C' + BC' + D] E'$

$A'C'E' + BC'E' + DE'$

Using DeMorgan's theorem:
 $(A + B)' = A' B'$
 $(AB)' = A' + B'$

#5 Obtain the truth table of the function $F = (A + C)(B' + C)$ and express the function in sum of minterms and product of maxterms.

A	B	C	B'	A+C	B'+C	(A+C)(B'+C)
0	0	0	1	0	1	0
0	0	1	1	1	1	1
0	1	0	0	0	0	0
0	1	1	0	1	1	1
1	0	0	1	1	1	1
1	0	1	1	1	1	1
1	1	0	0	1	0	0
1	1	1	0	1	1	1

Sum of minterms

$\sum m(1, 3, 4, 5, 7)$

$= A'B'C + A'BC + AB'C + AB'C + ABC$

Product of maxterms

$\prod M(0, 2, 6)$

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

#6 Express the following function in sum of minterms and product of maxterms:

$F(a, b, c, d) = (c' + d)(b' + c')$

$= b'c' + c'd' + b'd + c'd$

$= c' + b'd$

$= a'b'c'd' + a'b'c'd + a'bc'd' + a'bc'd + ab'c'd' + ab'c'd + abc'd' + abc'd + a'b'c'd + ab'c'd$

$= \sum m(0, 1, 3, 4, 5, 8, 9, 11, 12, 13)$

$= \prod M(2, 6, 7, 10, 14, 15)$

$(a+b+c'+d)(a+b'+c'+d)(a+b'+c'+d')(a'+b+c'+d)(a'+b'+c'+d)(a'+b'+c'+d')$

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7 a) $\pi(1,4,5,7)$
b) $\Sigma(0,2,5,9,10,11,13,14)$

8 $F = (BC + D)(C + AD')$
 $BC + ABCD' + CD + AD'D$
 $BC + ABCD' + CD$
 $BC(1 + AD')$

Sop = $BC + CD$

Pos = $C(B + D)$
↑
not sure if valid
is c being added to anything?

9 a) $a'b' + ab' + a'b = a' + b'$
 $a'(b' + b) + ab'$
 $a' + ab'$
 $= a' + b'$
Law of common identities

b) $(a+b)'bc = 0$
 $(a')(b')bc = 0$
 $a'b'bc = 0$
 $0 = 0$

c) $(ab' + a'b)' = a'b' + ab$
 $(a' + b)(a + b')$
 $a'a + a'b' + ba + bb'$
 $a'b' + ba = a'b' + ab$