((P→q) →P) →P isvalid 4a. = 7((P-79) ->P) V P $(Y \leftarrow X \Leftrightarrow Y \lor X \rightarrow Y)$ = ¬(¬(P→9) VP) VP (¬×vv ⇔ ×→Y) = 7(7(7P V9) VP) VP = 7((77P179)VP)VP (De Morgan kew) (¬¬×←>×) = - ((P 1 - q) VP) VP = (7(P179) 17P) VP (De Morgon Laus) = ((7PV 779) N 7P) VP (DeMorgan laws) 9V (97 / (PV 97)) $(\neg \neg x \Leftrightarrow x)$ (TPUQ UP) ^ (TPUP) (Dist. of vover ^) (TPVQUP) AT (7PUP €>T) = (TV9)^T (TPUP (T) = T 1 $(T\vee^{\times}\Leftrightarrow T)$ $(T \Leftrightarrow T^{N}T)$ 5d. PAT(PVC) No. It can be simplified to P^7p^7r, which is Introduction

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	Yes, it is in CNF form											
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