Ex1 Ex2  $\binom{c}{c}$ E13 Ex 4 JP V J9 Vr J9 V JP Vr

$$\begin{array}{l}
\rho \rightarrow (q \rightarrow r) \\
\equiv \gamma \rho \vee (\gamma q \vee r)
\end{array}$$

$$\begin{array}{l}
\equiv (\gamma \rho \vee q) \wedge (\rho \rightarrow r)
\end{array}$$

$$\begin{array}{l}
\equiv (\gamma \rho \vee q) \wedge (\gamma \rho \vee r) \wedge (\rho \rightarrow r)
\end{array}$$

$$\begin{array}{l}
\equiv \gamma \rho \vee \gamma \wedge (\gamma q \vee r)
\end{array}$$

$$\begin{array}{l}
\equiv (\gamma \rho \vee r) \wedge (\gamma q \vee r)
\end{array}$$

$$\begin{array}{l}
\equiv (\gamma \rho \vee r) \wedge (\gamma q \vee r)
\end{array}$$

$$\begin{array}{l}
\equiv (\gamma \rho \vee r) \wedge (\gamma q \vee r)
\end{array}$$

$$\begin{array}{l}
\equiv (\gamma \rho \vee r) \wedge (\gamma q \vee r)
\end{array}$$

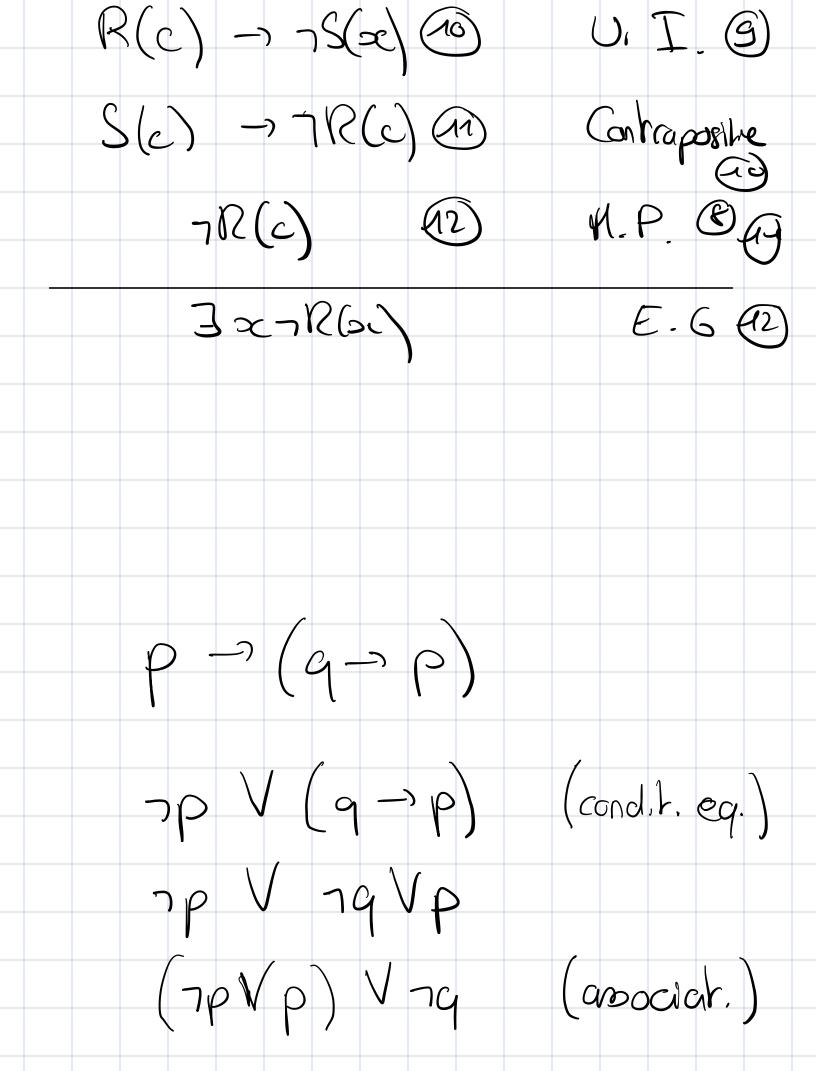
$$\begin{array}{l}
\equiv (\gamma \rho \vee r) \wedge (\gamma q \vee r)
\end{array}$$

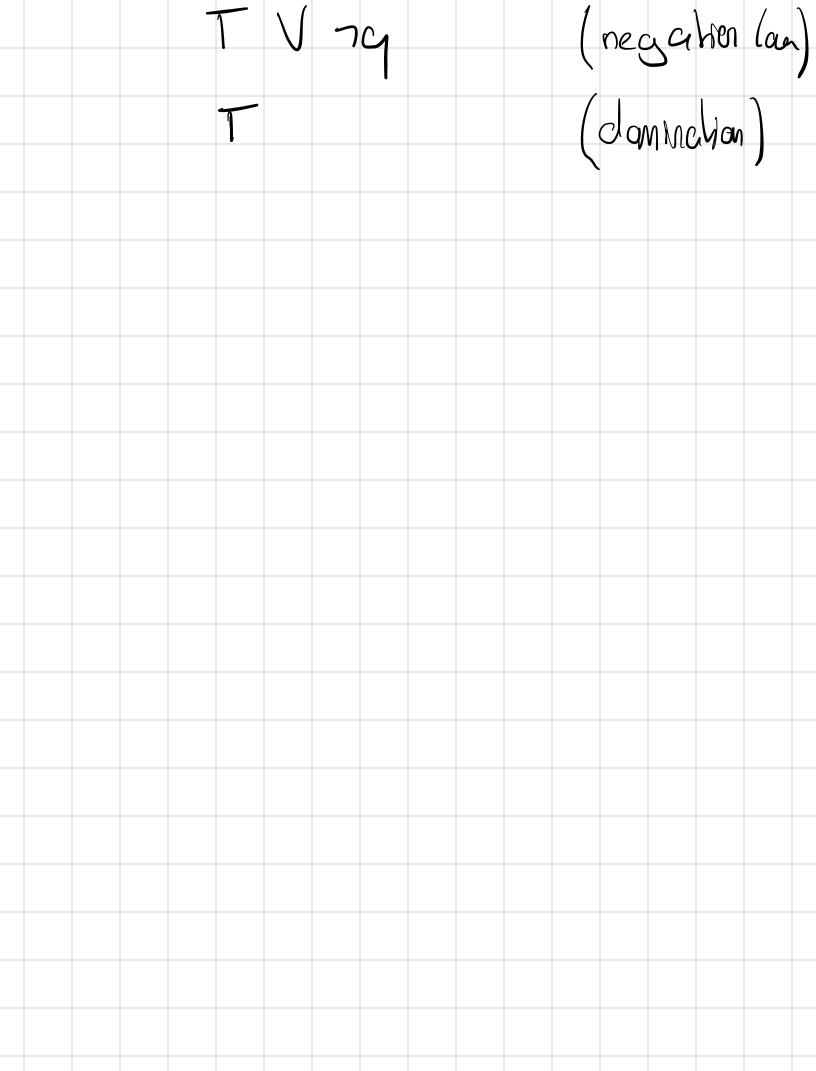
$$\begin{array}{l}
\equiv (\gamma \rho \vee r) \wedge (\gamma q \vee r)
\end{array}$$

 $= \neg \rho \wedge \neg q \vee r \wedge (\neg q \vee \neg p \vee \tau)$ = >pn>qVr 7 (p V g) V r 7pn 7q Vr

Ex6.  $(sVg) \rightarrow (hNr)$ -> hor (equivalence) (simplifiedian) (4) (premise) (S) (6)

(2) Vx (P(x) VQ(x) @ Prende P(a) V Q (a) (2)  $\forall x (\neg Q(x) \vee S(x)) (3)$ Panse 7Q(a) VS(a) (a) P(a) V S(a) (S) Resolvo Og  $Jx\gamma P(x)$  6 Pcemse E.I.G 7P(c) S(c) (8) Disjund.
Syll. Vx (R(x)-) ~S(x) 9





10 S k=1 We can make 10 graps of 3 consecutive integers are they are placed. Let's assume their sum is for al <17 16.10 = 160 Lue also know that each elements appear in 3 diff graps 3.5k = 3-55 k=1 = 165.1657160