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1 Demonstr	ati that R is $P \rightarrow Q, Q \rightarrow$	a valid Rand P	inference from	
the fire given premises are (1) $P \rightarrow Q$ (2) $Q \rightarrow R$				
$\begin{array}{c} (2) \alpha \longrightarrow R \\ (3) P \end{array}$			Nº 1	
513	I) P→Q	Rule P	1 19	
{z}	2) P	Rule P		
§1,2} 3	s) a	Rule T (F	$p, p \rightarrow a \Rightarrow a)$	
· 543 4) $Q \rightarrow R$	Rule P		
13 1 - pt -) R	Rule T (F	$P, P \rightarrow a \Rightarrow a$	
			9	

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show that $(P \rightarrow Q) \land (R \rightarrow S)$, $(Q \neq M) \land (S \rightarrow N)$				
	and $(P \rightarrow R) =$	$\rightarrow \neg P$.		
	premises are (1			
(Q→M)	$\Lambda (S \rightarrow N), \neg (MA$	N) and $(P \rightarrow R)$		
(on clusic	mis ¬P.			
513	$1) (P \rightarrow Q) \land (R \rightarrow S)$	s) Rule P		
519	2) P→Q	Rule T ($P \land a \Rightarrow P$)		
513	3) $R \rightarrow S$	Rule (PAQ > Q)		
<u> १</u> 43	$4)(a \rightarrow n) \wedge (s \rightarrow n)$	1) Rule P		
549	5) $Q \rightarrow 11$	Rule T (PAQ3⇒P)		
143	6) 5 → N	Rule T (Pra⇒a)		
\$1,4}	ר) P→r1	Rule I (P→Q,Q→R ⇒P		
\$1.43	8) R→N	Rule T (P→a,a→R⇒P		
593	9) $P \rightarrow R$	Rule P		

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$$\begin{cases} 1.4.9 \\ 10 \end{pmatrix} P \rightarrow N \qquad \text{Rule T } (P \rightarrow a, a \rightarrow R \Rightarrow P \\ \\ 11) \neg N \rightarrow \neg P \qquad \text{Rule T } (Taking \neg) \\ 11.4.9 \\ 12) \neg P \qquad P \qquad \text{Rule T } (Taking \neg) \\ \\ 11.4.9 \\ 13) (\neg P \rightarrow P \qquad \text{Rule T } (Taking \neg) \\ \\ 13) (\neg P \rightarrow P \qquad \text{Rule T } (a \rightarrow b, c \rightarrow b \Rightarrow \\ (avc) \rightarrow b) \\ \\ 1.4.9 \\ 15) \qquad (H \land N) \rightarrow P \qquad \text{Rule T } (Demogram's lime) \\ \\ \\ 151 \\ 15) \qquad (M \land N) \qquad \text{Rule P} \\ \\ \\ \\ \\ 1.4.9.15 \\ 16) \rightarrow P \qquad \text{Rule T } (P, P \rightarrow a \Rightarrow a) \end{cases}$$

Prove that the following argument is valid: $p \rightarrow \neg q$, $r \rightarrow q$, $r \Rightarrow \neg p$ Given premises are $p \rightarrow \neg q$, $r \rightarrow q$, rconclusion is $\neg p$.

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	II.	
513	1) Y	Rule P
{2}	2) r→q	Rule P
<i>ξ1,2</i> }	3) 9	Rule T (P, P→a ⇒a)
<u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u>	4) p→¬q	Rule P
ξ1,2,4 <u>}</u>	5) ¬P	$ \begin{array}{c} Rule T(P \to \neg Q, Q \\ \to \neg P) \end{array} $
1		

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