TU 152

Example 1: Prove that if $u \vee (r \to t)$ and $\sim u \wedge \sim t$, then $\sim$ r

Example 2: Prove that if $x \to (y \to z), \sim y \to \sim x$, and x, then z

Example 3: Prove that if $\sim p \to \sim q, \sim u, p \to t$, and $q \vee u$, then t

Example 4: Show $\sim t$ if $\left[r \to (s \to \sim t)\right] \wedge \left[(\sim s \to \sim r) \wedge r\right]$

Example 5: Prove that if $(\sim x \vee \sim y) \to (z \wedge w), z \to t$, and $\sim t$, then x

Example 6: Prove that if $(\sim a \vee b) \to c, \sim c \vee d$, and $d \to \sim (e \vee \sim e)$, then a

Example 7: Prove that if $x \vee \sim y$, and $z \to \sim (x \vee t)$, then $y \to \sim z$

Example 8: Prove that if $\left[a \vee (b \to c)\right] \wedge (b \vee e)$, then $\sim a \to (\sim c \to e)$

Example 9: Prove that if $(\sim x \wedge y) \to \sim z, \sim (x \vee y) \to w$, and $\sim x$, then $\sim z \vee w$

Example 10: Prove that if

$a \vee (b \wedge \sim c), \sim a, b \to (d \to e)$, and $\sim c \to (x \to y)$, then $\left[a \vee x \vee d\right] \to (y \vee e)$

Example 11: Prove that if

$a \to (b \wedge c), (d \wedge c) \to (e \wedge \sim a), a \vee (d \to \sim e)$, and $d \wedge (b \to e)$, then $\sim e \leftrightarrow \sim a$

Example 12: Prove that if $\left[\sim (s \wedge r) \vee s \vee p\right] \to (s \wedge t)$, then t

Example 13: Prove that if $a \vee b \vee c, \sim (d \wedge e) \to \sim (f \vee a)$, and $(c \to a) \wedge (\sim b \vee f)$, then d

Example 14: Prove that if $\sim (p \to q), (p \wedge r) \to (s \to q)$, and $(\sim r \to q) \vee (p \to s)$, then $r \leftrightarrow \sim s$

Example 15: Show that for every natural number $n, n < 2^n$

Example 16: Let n be positive integer that is greater than 4, prove that $n^2 + 1 < 2^n$