Math 8 - HW #4

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2.3) 2.) If a function is continuous, then it is differentiable

3.) If a function is cont, then it is integrable

11.) If you fail, then you have stopped writing

2.4) 1) A matrix is invertible if and only if its determinant is nonzero

4) $a \in \mathbb{Q}$ then $5a \in \mathbb{Q}$ if and only if $5a \in \mathbb{Q}$ then $a \in \mathbb{Q}$.

2.5) 3) $\sim (P \Rightarrow Q)$

P	Q	$P \Rightarrow Q$	$\sim(P \Rightarrow Q)$
T	T	T	F
T	F	F	T
F	T	T	F
F	F	T	F

4) $\sim (P \vee Q) \vee (\sim P)$

P	Q	$\sim(P \vee Q) \vee (\sim P)$
T	T	F
T	F	F
F	T	T
F	F	T

6. $(P \wedge \sim P) \wedge Q$

P	Q	$(P \wedge \sim P) \wedge Q$
T	T	F
T	F	F
F	T	F
F	F	F

8. $P \vee (Q \wedge \sim R)$

P	Q	R	$Q \wedge \sim R$	$P \vee (Q \wedge \sim R)$
T	T	T	F	F
T	T	F	T	T
T	F	T	F	F
T	F	F	F	F
F	T	T	F	F
F	T	F	T	T
F	F	T	F	F
F	F	F	F	F

11. - $P \wedge Q$ must be false if P is false.

- $R \Rightarrow S$ must be false for $(R \Rightarrow S) \Leftrightarrow (P \wedge Q)$ to be true.

- If $R \Rightarrow S$ is false then R is true and S is false