Homework 7 - MATH 2200 Spring 2017

1. Formula or not? If not, circle the problem.

(a) $(\forall x)(\exists y)(Px \wedge (Gy \rightarrow (\exists z)(Qz)))$

(b) $(\forall w)(\exists Px)(Gpx) \vee (\forall x)(Wx \vee \neg Wx)$

(c) $(\exists a)(\exists b)(\forall w)(Qw \leftrightarrow (Pab \rightarrow Gbw)) \wedge Px$

(d) $(\forall \exists)(G\exists \wedge P\forall)$

2. Write a formal deduction for the argument:

"All norms yield a metric. All metrics yield a topology. Therefore all norms yields a topology."

3. Write a formal deduction for the argument:

"All vector spaces are a group under addition. The set of positive integers do not form a group under addition. Therefore the set of positive integers is not a vector space."