Homework 6.

1. Prove the following. You may use any of the quantifier rules (UE, EI, UI, EE), as well as any of the inference rules from the first half of the semester.

   (a) (1) $(\exists x)(Fx \,\&\, Gx)$ / $(\exists x)Fx \,\&\, (\exists x)Gx$

   (b) (1) $(x)(Fx \rightarrow Gx)$ / $(x)Fx \rightarrow (x)Gx$

   (c) (1) $(\exists x)(Fx \vee Gx)$ / $(\exists x)Fx \vee (\exists x)Gx$

   (d) (1) $-(x)(Fx \rightarrow Gx)$ / $(\exists x)(Fx \,\&\, -Gx)$

   (e) (1) $(\exists x)Fx \rightarrow Gm$ / $(x)(Fx \rightarrow Gm)$

2. Prove the following theorem of predicate logic. You may use any of the quantifier rules (UE, EI, UI, EE), as well as any of the inference rules from the first half of the semester.

$$(\exists x)Fx \vee (x) - Fx$$