Homework 6:
Predicate logic derivations

Intro Logic
Ted Sider

1. $\exists x(\sim Fx \& Gx)$; $\forall x(Gx \rightarrow Hx)$ / show $\exists x[\sim Fx \& Hx]$
2. $\forall x(Gx \rightarrow Fx)$; $\forall x(Fx \rightarrow [Hx \vee Ix])$; $\forall x(Gx \rightarrow \sim Hx)$ / show $\forall x(Gx \rightarrow Ix)$
3. $\forall x[(Fx \& Hx) \rightarrow Gx]$; $\exists x(Kax \& Jx)$; $\exists x Kax \rightarrow \forall x Hx$ / show $\forall x(Fx \rightarrow Gx)$
4. $\forall x(Lxx \rightarrow Fx)$; $\forall x \forall y(Lxy \rightarrow Lxx)$; $\forall x \sim Fx$ / show $\sim \exists x \exists y Lxy$
5. $\forall x(Fx \rightarrow Gx) \vee \forall x(Fx \rightarrow Hx)$ / show $\forall x(Fx \rightarrow (Gx \vee Hx))$
6. $\exists x \sim Lbx \rightarrow \forall x Lcx$; $\forall x(Lcx \rightarrow Lxb)$ / show $Lba \vee Lab$
7. $\forall x(Fx \rightarrow Gx)$; $\forall y[(Fy \& Gy) \rightarrow \sim Hy]$; $\sim \forall x \sim Hx$ / show $\exists x(Hx \& \sim Fx)$
8. $\forall y \exists x Rxy$ / show $\sim \exists y \forall x \sim Rxy$
9. $\exists y(Gy \& \forall z Ryz)$; $\forall y[Fy \rightarrow \exists z \sim Ryz]$ / show $\exists y(Gy \& \sim Fy)$
10. $\forall x(\forall z Rxz \rightarrow \forall y Ryx)$; $\exists z \exists y Ryz$; $\forall x \forall y(Rxy \rightarrow \forall z Rxz)$ / show $\forall z \forall y Ryz$