A. For each of the following sentences, give an interpretation with domain $\{1, 2, 3, 4\}$ and non-empty extension of "Rxy" that makes the sentence true, and another such interpretation that makes the sentence false.

1. $(\exists x)(y)(Ryx \rightarrow Ryy)$
2. $(x)(y)(Rxy \rightarrow (\exists z)(Rxz \,\&\, Ryz))$
3. $(x)[(y)(Ryx \rightarrow Rxy) \rightarrow (y)(Rxy \rightarrow Ryx)]$
4. $(\exists x)(\exists y)(Rxy \,\&\, Ryx) \,\&\, (x)(y)[(\exists z)(Rxz \,\&\, Rzy) \rightarrow Rxy]$

B. For each of the following pairs of sentences, give an interpretation that shows that the first sentence does not imply the second.

1.	$(x)(\exists y)(Rxy \vee Ryx)$	$(x)(\exists y)Rxy \vee (x)(\exists y)Ryx$
2.	$(\exists x)(y) - Rxy \,\&\, (\exists x)(y)Rxy$	$(x)[(\exists y)Rxy \rightarrow (y)Rxy]$
3.	$(y)[(\exists z)Ryz \rightarrow (\exists z)Rzy]$	$(y)[(z)Ryz \rightarrow (z)Rzy]$
4.	$(x)(\exists y)(Rxy \,\&\, -Ryx)$	$(x)[(\exists y)Rxy \rightarrow (\exists y)Ryx]$