

Math 2283 - Introduction to Logic

Homework #7 - 2006.10.26

Due Date - 2006.11.01

Name: _____

Determine which of the following formulas are wff's. Here, G is a two-place predicate and R a three-place predicate.

1. $\forall x (\exists y Gxy \vee Rxz)$

2. $\forall x \exists y Gxy \vee Rxyz$

3. $\forall x \exists y (Gxy \vee \neg Rxyz)$

4. $\forall x \exists y (Gxy \vee Rxy)$

5. $\exists y (Gxy \Rightarrow \forall z Rxyz)$

6. $\forall x \exists y (Gxx \vee Rxyz) \wedge \forall z Gzx$

7. $\forall x (\exists y (Gxy \vee Rxyz) \wedge \forall z Gzx)$

Which of the following wff's are open and which are closed? If the wff is open, underline all free variables. Here, G is a two-place predicate and R a one-place predicate.

8. $\exists y \forall x (Gxy \vee Rz)$

9. $\exists y \forall x (Gxy \vee Rx)$

10. $(\exists y \forall x Gxy \vee Rx)$

11. $(\exists y \forall x Gxy \vee Ry)$

12. $(\exists y \forall x Gxy \vee \forall x Rx)$

13. $\exists x (\forall y Gxy \Rightarrow Ry)$

14. $\exists x (\forall y Gxy \Rightarrow Rx)$