

Exam 1– MATH 313

Define the following: Directions: Make sure to show any necessary work to receive full credit. If you need extra space please use the back of the sheet with appropriate labeling. Buena suerte.

1. Translate the following Tarski's Sentences. Then label and indicate the arity of the predicate.

a) $\text{Between}(\text{max}, \text{claire}, \text{john})$

b) $\text{Taller}(\text{father}(\text{max}), \text{max})$

2. i) Translate the following sentence into colloquial english. ii) Then rewrite the sentence using DeMorgan's Laws. iii) Translate the rewritten sentence into colloquial english.

$$\neg(\neg\text{Tet}(f) \wedge \neg\text{Small}(f))$$

3. Prove the following argument. Be sure to say what rule you are using and which steps you are citing for that rule.

1. $\text{SameCol}(a, b)$

2. $c = b$

3. $c = d$

4.

5.

6.

7.

8. $\text{SameCol}(a, d)$

4. Given the following argument rewrite in Fitch format. Determine whether the following argument is valid or not. If it is, say whether it is sound. Explain your answers.

My math class has many students. There are several students who enjoy Tori Amos' music. Tori Amos is playing in the area October 18th. Therefore, some students are going to see her concert.

1.

2.

3.

4.

5. Given the following argument rewrite in Fitch format. Determine whether the following argument is valid or not. If it is, say whether it is sound. Explain your answers.

I am a falcon. This is because my name begins with the letter F and my name is the name of a mammal which is the mascot of a major university's sports teams. Said university is in the state of Ohio.

1.

2.

3.

4.

