

## Intermediate Logic

## Homework #16

(Due: 2/5/2013)



Read pages 31-37 in the *Intermediate Logic* text. Define the following as explained in the text. (It may be easier to define some of these terms after you have completed the exercises, as you will be more proficient with these concepts.)

- Proposition –
  
- Simple proposition –
  
- Compound proposition –
  
- Logical operator –
  
- Propositional constant –
  
- Propositional variable –
  
- Negation –
  
- Conjunction –
  
- Disjunction –

Exercise 6 (from page 33 of the text).

What are the two main differences between propositional constants and propositional variables?

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_



Symbolize the following compound propositions:

3. Joseph and Israel went to Egypt.

\_\_\_\_\_

4. Israel did not go to Egypt.

\_\_\_\_\_

5. Israel went to Egypt but his sons became slaves.

\_\_\_\_\_

6. Either Joseph went to Egypt or there was a famine.

\_\_\_\_\_

7. Joseph and Israel did not both go to Egypt.

\_\_\_\_\_

8. Neither Joseph nor Israel went to Egypt.

\_\_\_\_\_

9. Joseph and Israel went to Egypt; however, there was a famine and the sons of Israel became slaves.

\_\_\_\_\_

10. Israel went to Egypt; but either Joseph did not go to Egypt or there was a famine.

\_\_\_\_\_

## Cranium Calisthenics

The Lady or the Tiger?\*

On the first day, there were three trials. In all three, the king explained to the prisoners that each of the two rooms contained either a lady or a tiger, but it could be that there were tigers in both rooms, or ladies in both rooms, or then again, maybe one room contained a lady and the other room a tiger. The first prisoner chose the door with the lady, and left quite contented and unharmed.



The Second Trial: The king pointed to the signs on the doors of the rooms:

I  
AT LEAST ONE OF  
THESE ROOMS  
CONTAINS A LADY

II  
A TIGER IS IN THE  
OTHER ROOM

"Are the statements on the signs true?" asked the second prisoner.

"They are either both true or both false," replied the king.

Which door would you choose, and why?