

# Introductory Logic

## Homework #7

Read pages 34-44 in the text.



Define *categorical statement* –

Without looking at the text, can you describe each of the five relationships between categorical statements and identify the statements to which each applies? Check your answers.

Contradiction – \_\_\_\_\_

Contrariety – \_\_\_\_\_

Subcontrariety – \_\_\_\_\_

Subimplication – \_\_\_\_\_

Superimplication – \_\_\_\_\_

Contradiction – (A&O and I&E) Both statements cannot be true, and both statements cannot be false. Contrariety – (A&E) Both statements cannot be true, however, both can be false. Subcontrariety – (I&O) Both statements can be true, but both cannot be false. Subimplication – (A to I and E to O) The first statement implies the second. Superimplication – (I to A and O to E) The falsity of the first implies the falsity of the second.

If you had any trouble, take time to go back over the reading. Otherwise, go on to the exercises.

### Exercise Ten (page 38)

1. 1<sup>st</sup>:  
2<sup>nd</sup>:

2. 1<sup>st</sup>:  
2<sup>nd</sup>:

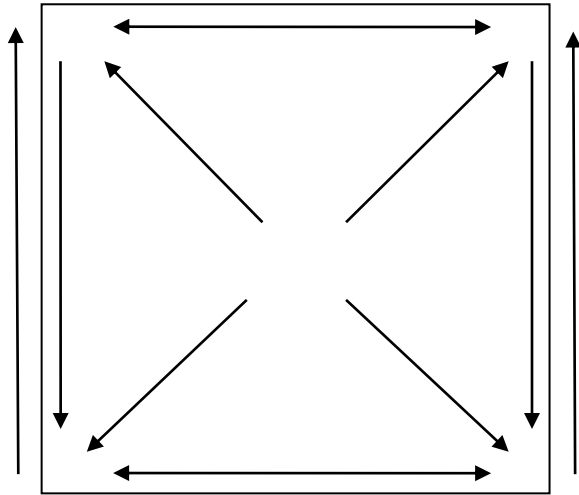
3. 1<sup>st</sup>:  
2<sup>nd</sup>:

Exercise Eleven (page 42)

- |          |          |           |
|----------|----------|-----------|
| 1. _____ | 5. _____ | 9. _____  |
| 2. _____ | 6. _____ | 10. _____ |
| 3. _____ | 7. _____ | 11. _____ |
| 4. _____ | 8. _____ | 12. _____ |

Exercise Twelve (page 43)

1.



2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_

- |          |           |
|----------|-----------|
| 8. T F ? | 10. T F ? |
| T F ?    | T F ?     |
| 9. T F ? | 11. T F ? |
| T F ?    | T F ?     |

12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_

**Cranium Calisthenics**



"There was a robbery," relayed Scheherazade to the king, "concerning Abu, Ibn, and Hassib. One of them stole a horse, one stole a mule, and one stole a camel. The three were finally caught, but -"

"That's a good thing!" interrupted the king.

"But it was not known which thief stole what. There was a trial, and the three made the following statements:

ABU: Ibn stole the horse.

HASSIB: Not so. Ibn stole the mule.

IBN: Those are both lies! I didn't steal either.

"As it happened, the one who stole the camel was lying, and the one who stole the horse was telling the truth.

Who stole which animal?\*



Abu: \_\_\_\_\_ Ibn: \_\_\_\_\_ Hassib: \_\_\_\_\_

Hint: think about what you've learned about statements and their relationships!

\* From *The Riddle of Scheherazade and Other Puzzles*, Smullyan. Knopf, 1997.  
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