Name _____

Points (20) _____

Introductory Logic

Homework #8

Read pages 47-56 in the text.

Define the following, *using the text*:

- Argument –
- Premise –
- Conclusion –
- Validity –

Exercise Thirteen (page 49). Underline the conclusion in each of the arguments:

1. All theology is a study in infinity, so all calculus problems are theology, because all calculus problems are a study in infinity.
2. All space stations are important research, but some space stations are not a product of American ingenuity. Therefore some important research is not a product of American ingenuity.
3. Some pagans are idolaters, because no pagans are Christians, and no Christians are idolaters.
4. All objects in free fall are weightless, and all meteors are objects in free fall. Therefore all meteors are weightless.
5. All marsupials are pouched animals, and some marsupials are not Australian mammals. Consequently, some Australian mammals are not pouched animals.
6. Some Socratic sages are not perspicacious people, since some Socratic sages are metaphorical masters, and some perspicacious people are also metaphorical masters.
7. All murderers are criminals, and some heroes of the faith were murderers, from which it follows that some criminals are heroes of the faith.
8. No street legal vehicles are stock cars. Thus no racing car is street legal, since all stock cars are racing cars.
9. Some conclusions are not easily located statements, for all easily located statements are sentences at the end of arguments, and some sentences at the end of arguments are not conclusions.
10. Given that some pagan literature is great writing, and no great writing is worthless instructional material, we must conclude that some pagan literature is not worthless instructional material.

Exercise 14 (page 52, modified)

On the line next to each argument below, write the letter corresponding to the correct description of that argument.

A. Valid argument, two false premises, false conclusion.
B. Valid argument, two false premises, true conclusion.
C. Invalid argument, two false premises, false conclusion.
D. Invalid argument, two false premises, true conclusion.
E. Invalid argument, two true premises, false conclusion.

___ 1. All joeys are kangaroos. All kangaroos are marsupials. Therefore, all marsupials are joeys.

___ 2. Some plants are animals. No animals are pets. Therefore, some plants are not pets.

___ 3. Some iPhones are not cell phones. All cell phones are smart phones. Therefore, some iPhones are not smart phones.

___ 4. No jets are fighter planes. Some fighter planes are not airplanes. Therefore, some jets are airplanes.

___ 5. All scientists are doctors. All lawyers are doctors. Therefore, all scientists are lawyers.

Define the following, using the text:

- Syllogism –
- Minor term –
- Major term –
- Middle term –

For practice, write the following argument as a syllogism in standard order; then identify the terms. Remember, standard order includes major premise first, then minor. Check your answers.

It must be true that some trees are evergreens, since many trees are firs, and firs are evergreens.

Syllogism: _____

_____

_____

Major term: _____ Minor term: _____ Middle term: _____

Syllogism: All firs are evergreens. Some trees are firs. Therefore, some trees are evergreens. Major: evergreens. Minor: trees. Middle: firs.

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

Exercise Fifteen (pages 55-56):

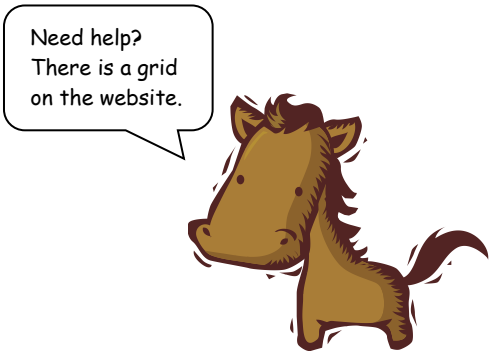
1. Major: _____ Minor: _____ Middle: _____
2. Major: _____ Minor: _____ Middle: _____
3. Major: _____ Minor: _____ Middle: _____
4. Major: _____ Minor: _____ Middle: _____
5. Major: _____ Minor: _____ Middle: _____

Cranium Calisthenics

Stephen bought a horse and decided to save on the cost of feed by buying grain in bulk and mixing it himself. He bought rolled oats, corn, barley, wheat bran, soybean meal, and molasses. The prices were 25¢, 28¢, 30¢, 32¢, 35¢, and 40¢ per pound (in some order). In each case, he bought the ingredients in a different number of whole pounds from 1 to 6 lbs. From the clues below, can you determine how much of each ingredient he bought and what the price of each one was?

1. The molasses cost 2¢ less per pound than the ingredient that Stephen bought two pounds of.
2. He paid $1.50 for all of the rolled oats that He bought.
3. He didn't buy exactly three pounds of the item that cost 35¢ per pound.
4. The barley cost less than 30¢ per pound.
5. Stephen bought two more pounds of wheat bran than of the ingredient that didn't cost exactly 32¢.
6. He didn't buy one more pound of molasses than he did of the most expensive ingredient.
7. He bought five pounds of corn.

Ingredient	Price per pound	Pounds purchased



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