10. EXERCISES FOR CHAPTER 1

EXERCISE SET A

For each of the following say whether the statement is true (T) or false (F).

1. In any valid argument, the premises are all true.
2. In any valid argument, the conclusion is true.
3. In any valid argument, if the premises are all true, then the conclusion is also true.
4. In any factually correct argument, the premises are all true.
5. In any factually correct argument, the conclusion is true.
6. In any sound argument, the premises are all true.
7. In a sound argument the conclusion is true.
8. Every sound argument is factually correct.
9. Every sound argument is valid.
10. Every factually correct argument is valid.
11. Every factually correct argument is sound.
12. Every valid argument is factually correct.
13. Every valid argument is sound.
14. Every valid argument has a true conclusion.
15. Every factually correct argument has a true conclusion.
16. Every sound argument has a true conclusion.
17. If an argument is valid and has a false conclusion, then it must have at least one false premise.
18. If an argument is valid and has a true conclusion, then it must have all true premises.
19. If an argument is valid and has at least one false premise then its conclusion must be false.
20. If an argument is valid and has all true premises, then its conclusion must be true.
EXERCISE SET B

In each of the following, you are given an argument to analyze. In each case, answer the following questions.

(1) Is the argument **factually correct**?
(2) Is the argument **valid**?
(3) Is the argument **sound**?

Note that in many cases, the answer might legitimately be “can't tell”. For example, in certain cases in which one does not know whether the premises are true or false, one cannot decide whether the argument is factually correct, and hence on cannot decide whether the argument is sound.

1. all dogs are reptiles
   all reptiles are Martians
   / all dogs are Martians

2. some dogs are cats
   all cats are felines
   / some dogs are felines

3. all dogs are Republicans
   some dogs are flea-bags
   / some Republicans are flea-bags

4. all dogs are Republicans
   some Republicans are flea-bags
   / some dogs are flea-bags

5. some cats are pets
   some pets are dogs
   / some cats are dogs

6. all cats are mammals
   all dogs are mammals
   / all cats are dogs

7. all lizards are reptiles
   no reptiles are warm-blooded
   / no lizards are warm-blooded

8. all dogs are reptiles
   no reptiles are warm-blooded
   / no dogs are warm-blooded

9. no cats are dogs
   no dogs are cows
   / no cats are cows

10. no cats are dogs
    some dogs are pets
    / some pets are not cats

11. only dogs are pets
    some cats are pets
    / some cats are dogs

12. only bullfighters are macho
    Max is macho
    / Max is a bullfighter

13. only bullfighters are macho
    Max is a bullfighter
    / Max is macho

14. food containing DDT is dangerous
    everything I cook is dangerous
    / everything I cook contains DDT

15. the only dogs I like are collies
    Sean is a dog I like
    / Sean is a collie

16. the only people still working these exercises are masochists
    I am still working on these exercises
    / I am a masochist
EXERCISE SET C

In the following, you are given several syllogistic arguments (some valid, some invalid). In each case, attempt to construct a counterexample. A valid argument does not admit a counterexample, so in some cases, you will not be able to construct a counterexample.

1. all dogs are reptiles
   all reptiles are Martians
   / all dogs are Martians

2. all dogs are mammals
   some mammals are pets
   / some dogs are pets

3. all ducks waddle
   nothing that waddles is graceful
   / no duck is graceful

4. all cows are eligible voters
   some cows are stupid
   / some eligible voters are stupid

5. all birds can fly
   some mammals can fly
   / some birds are mammals

6. all cats are vertebrates
   all mammals are vertebrates
   / all cats are mammals

7. all dogs are Republicans
   some Republicans are flea-bags
   / some dogs are flea-bags

8. all turtles are reptiles
   no turtles are warm-blooded
   / no reptiles are warm-blooded

9. no dogs are cats
   no cats are apes
   / no dogs are apes

10. no mammals are cold-blooded
    some lizards are cold-blooded
    / some mammals are not lizards