You MUST use good notation **Math 102** Name _____
and show appropriate work. (Section 3.5)

Verifying Syllogisms

1. In each use Euler diagram to determine whether the given syllogism is valid or invalid.
   Clearly state your results.

   a)   All horses have four legs.
          Thunder is a horse.   .
          Therefore, Thunder has four legs.

   b)   All horses have four legs.
          Thunder is not a horse.   .
          Therefore, Thunder does not have four legs.

   c)   All horses have four legs.
          Some animals with four legs are black.
          Therefore, some horses are black.

   d)   Some horses are black.
          Thunder is not black.   .
          Therefore, Thunder is not a horse.

e)   All A's are B's.
<u>No B's are C's.   </u>.
Therefore, no A's are C's.

f)   All A 's are B's.
<u>Some C's are B's.   </u>.
Therefore, some C's are not A's.

2.   A pair of statements is said to be consistent if they can be simultaneously true, otherwise they are inconsistent. Use Euler diagrams to determine whether each pair is consistent. Show your work and state your results.

a)   Some dogs are not barkers.
All barkers are dogs.

b)   All mathematics students are industrious.
Some mathematics students are not industrious.