

Logic Homework Exercises #5 (Syllogistic Arguments)

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Instructions. Use Euler circles to determine the validity of the following arguments:

1. All doctors are rich. Nelson is rich. Therefore, Nelson is a doctor.
2. All teachers are wise. All wise people are wealthy. Therefore, all teachers are wealthy.
3. Some drivers speed. All speeders are dangerous. Therefore, Some drivers are dangerous.
4. No politicians curse. No Republicans curse. Therefore, All Republicans are politicians.
5. All Pennsylvanians are Americans. All Philadelphians are Americans. Therefore, Some Philadelphians are Pennsylvanians.
6. No smokers are healthy. John Lee doesn't smoke. Therefore, John Lee is not healthy.
7. Everyone who smiles is friendly. Jake does not smile. Therefore, Jake is not friendly.
8. No Cubs are White Sox. All White Sox are baseball players. Therefore, Some baseball players are not Cubs.
9. Some voters are not Republicans. Some people are not voters. Therefore, some people are not Republicans. Assume that:
 - (a) All voters are people,
 - (b) All Republicans are people
 - (c) The universe is the set of all people
10. All dogs are animals. No dogs are horses. Therefore, no horses are animals.
11. Some integers are not perfect numbers. All integers are real numbers. Therefore, some perfect numbers are not real numbers. (Note: a perfect number is a natural number n which has the property that it is equal to the sum of its divisors (excluding n itself). e.g. $n = 28$ is a perfect number because $28 = 1 + 2 + 4 + 7 + 14$.)
12. All movies are violent epics. No violent epics are worth watching. Therefore, nothing worth watching is a movie.