

Truth, Validity, and Soundness (Solutions)
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The concepts of truth, validity, and soundness are important in this course, since one of our concerns is the analysis and evaluation of arguments. The following exercises are designed to test your understanding of these concepts. To solve the exercises, you must not only have memorized the definitions of the terms, but understood the ideas they express. In each case, in addition to marking a “T” or an “F” on the line, determine whether the statement is true or false *by definition* or *by inference* from one or more definitions. For example, it is true *by definition* that a puppy is a dog (since “puppy” *means* young dog), but true *by inference* that a puppy is not a cat (since no dogs are cats).

 T 1. All sound arguments are valid arguments.

 F 2. All valid arguments are sound arguments.

 F 3. All valid arguments have true conclusions.

 T 4. All sound arguments have true conclusions.

 F 5. All invalid arguments have false conclusions.

 F 6. All unsound arguments have false conclusions.

 T 7. All sound arguments have true premises.

 F 8. All valid arguments have true premises.

 T 9. If a valid argument has a false conclusion, then it has at least one false premise.

 F 10. If a valid argument has a true conclusion, then it has true premises.

 T 11. If the premises of a valid argument are true, then the conclusion is true.

- T 12. There can be a valid argument with a false conclusion.
- T 13. There can be an invalid argument with a true conclusion.
- T 14. There can be a valid argument with false premises.
- T 15. There can be an invalid argument with true premises.
- F 16. There can be a sound argument with a false conclusion.
- T 17. There can be an unsound argument with a true conclusion.
- F 18. There can be a sound argument with false premises.
- T 19. There can be an unsound argument with true premises.
- F 20. There can be an invalid but sound argument.