

LESSON
2-3

Practice B

Using Deductive Reasoning to Verify Conjectures

Tell whether each conclusion is a result of inductive or deductive reasoning.

1. The United States Census Bureau collects data on the earnings of American citizens. Using data for the three years from 2001 to 2003, the bureau concluded that the national average median income for a four-person family was \$43,527.

2. A speeding ticket costs \$40 plus \$5 per mi/h over the speed limit. Lynne mentions to Frank that she was given a ticket for \$75. Frank concludes that Lynne was driving 7 mi/h over the speed limit.

Determine if each conjecture is valid by the Law of Detachment.

3. Given: If $m\angle ABC = m\angle CBD$, then \overrightarrow{BC} bisects $\angle ABD$. \overrightarrow{BC} bisects $\angle ABD$.

Conjecture: $m\angle ABC = m\angle CBD$. _____

4. Given: You will catch a catfish if you use stink bait. Stuart caught a catfish.

Conjecture: Stuart used stink bait. _____

5. Given: An obtuse triangle has two acute angles. Triangle ABC is obtuse.

Conjecture: Triangle ABC has two acute angles. _____

Determine if each conjecture is valid by the Law of Syllogism.

6. Given: If the gossip said it, then it must be true. If it is true, then somebody is in big trouble.

Conjecture: Somebody is in big trouble because the gossip said it. _____

Determine if each conjecture is valid by the Law of Syllogism.

6. Given: If the gossip said it, then it must be true. If it is true, then somebody is in big trouble.

Conjecture: Somebody is in big trouble because the gossip said it. _____

7. Given: No human is immortal. Fido the dog is not human.

Conjecture: Fido the dog is immortal. _____

8. Given: The radio is distracting when I am studying. If it is 7:30 P.M. on a weeknight, I am studying.

Conjecture: If it is 7:30 P.M. on a weeknight, the radio is distracting. _____

Draw a conclusion from the given information.

9. Given: If two segments intersect, then they are not parallel. If two segments are not parallel, then they could be perpendicular. \overline{EF} and \overline{MN} intersect.

10. Given: When you are relaxed, your blood pressure is relatively low. If you are sailing, you are relaxed. Becky is sailing.

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1. inductive reasoning
2. deductive reasoning
3. invalid
4. invalid
5. valid
6. valid
7. invalid
8. valid
9. \overline{EF} and \overline{MN} could be perpendicular.
10. Becky's blood pressure is relatively low.