

Identify the connective in each sentence as biconditional, conjunction, disjunction, or implication.

1. Jane spoke to Marla and Martha.
conjunction
2. If John won the tennis match, he became the national champion.
implication
3. Either Janice or Janell cooked dinner.
disjunction
4. Bill went to the store even though it was raining.
conjunction
5. All birds have feathers, and all feathered things are birds.
biconditional (or equivalence)
6. Since Jim saw the accident, he became a witness at the trial.
implication

Give the symbolic form of each sentence. *Students may use other letters in 7–10.*

7. If he went to the restaurant, then he was hungry.
 $R \rightarrow H$
8. Vicki saw a bear if and only if she lives in the country.
 $B \leftrightarrow C$
9. With horror, Tanya watched the first tower fall and then the second.
 $T_1 \wedge T_2$
10. Jack or Bob won the wrestling match.
 $J \vee B$

Evaluate each statement below as true or false.

11. The president can veto bills made in the House and the Senate.
True
12. If a living thing is a plant, then it is green.
False

Answer each question.

13. Give the contrapositive of “If he was in the ring, then he was boxing.”
If he was not boxing, then he was not in the ring.
14. Give the converse of “If he was lazy, then he was not well fed.”
If he was not well fed, then he was lazy.
15. Give the original statement if the inverse is “If he was not jesting, then he was lying.”
If he was jesting, then he was not lying.

Give the truth table for each symbol.

16. conjunction

A	\wedge	B
T	T	T
T	F	F
F	F	T
F	F	F

17. biconditional

A	\leftrightarrow	B
T	T	T
T	F	F
F	F	T
F	T	F

18. implication

A	\rightarrow	B
T	T	T
T	F	F
F	T	T
F	T	F

19. disjunction

A	\vee	B
T	T	T
T	T	F
F	T	T
F	F	F

Complete the truth table below.

20. $(A \vee B) \rightarrow A$

$(A$	\vee	$B)$	\rightarrow	A
T	T	T	T	T
T	T	F	T	T
F	T	T	F	F
F	F	F	T	F

Answer the question.

21. Give the significance of James 2:10–11 for the study of logic.

The passage shows that the statements of the law are connected by the conjunction and, and therefore anyone who has broken one law is guilty of breaking all.