

3. 4 Verifying Arguments

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Key Terms:

Argument

Premise

Conclusion

Valid

Law of Detachment

Law of Contraposition

Law of Syllogism

Disjunctive Syllogism

Fallacy of the Inverse

Fallacy of the Converse

Name: _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Identify the form of the argument and state whether the argument is valid or invalid.

1) If you eat well, you will be well.

If you are well, you will be happy.

Therefore, if you eat well, you will be happy.

2) If I'm hungry, then I will eat.

I'm not hungry.

Therefore, I will not eat.

3) You get soup or you get salad.

You did not get soup.

Therefore, you got salad.

4) If it is cold, then you need a coat.

You do not need a coat.

Therefore, it is not cold.

5) If the bough breaks, then the cradle will fall.

The bough breaks.

Therefore, the cradle will fall.

Determine whether the form represents a valid argument.

6) $\sim p$

$q \rightarrow \sim p$

$\sim p \vee q$

7) p

$\sim q \rightarrow \sim p$

$\sim p \wedge q$

$$\begin{array}{l}
 8) \ r \\
 r \rightarrow p \\
 (p \vee r) \rightarrow q \\
 \hline
 \sim p
 \end{array}$$

$$\begin{array}{l}
 9) \ r \\
 q \rightarrow \sim r \\
 \sim r \wedge p \\
 \hline
 p
 \end{array}$$

Determine whether the argument is valid or invalid.

- 10) If the pond contains algae, then the pond does not contain trout.
 If the pond does not contain algae and does not contain trout, then the pond does not contain frogs.
The pond contains algae.
 Therefore, the pond contains frogs.
- 11) If your father fixes the car, then you will go to the museum.
 Your father will buy a wrench or you will not go to the museum.
Your father fixes the car.
 Therefore, your father will buy a wrench and you will go to the museum.

Determine whether the syllogism is valid or invalid.

- 12) All business expenses are covered by the company.
This expense is a business expense.
 \therefore This expense is covered by the company.
- 13) All businesses are subject to safety inspections.
This restaurant is subject to safety inspections.
 \therefore This restaurant is a business.