

MATH 017 Sections 006 and 007  
SPRING 2007  
QUIZ 2

1. Determine whether the argument is valid or invalid:

$$\begin{array}{l} p \rightarrow \neg q \\ q \rightarrow \neg p \\ \hline p \wedge \neg q \end{array}$$

- a. Valid  
b. Invalid  
c. Neither  
d. Cannot be determined
2. Determine whether the argument is valid or invalid: If Rufus was my best friend and companion, he would never have left my side. Rufus is not by my side. Hence Rufus is not my best friend or is he not my companion.
- a. Valid  
b. Invalid  
c. Neither  
d. Cannot be determined
3. Use the premises to give a conclusion that yields a valid argument (more simply, complete the argument so it is valid): All snow gets muddy. All precipitation that gets muddy makes it hard to drive. If it is hard to drive, I may have an accident.
- a. All precipitation is snow.  
b. All precipitation that makes it hard to drive is snow.  
c. If I have an accident, it must have snowed.  
d. If it has snowed, I may have an accident.
4. Write in symbolic notation: All cats have black fur. (Let  $c(x)$  read:  $x$  is a cat, and let  $b(x)$  read:  $x$  has black fur).
- a.  $\forall x[c(x) \rightarrow b(x)]$   
b.  $\forall x[c(x) \wedge \neg b(x)]$   
c.  $\forall x[\neg c(x) \wedge \neg b(x)]$   
d.  $\forall x[c(x) \rightarrow \neg b(x)]$

5. The argument has a false conclusion. Decide whether it is valid or invalid:

Irishmen are Irishmen.  
Welshmen are Welshmen.

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All Irishmen and all Welshmen are at least eight feet tall.

- a. Valid
- b. Invalid
- c. Neither
- d. Cannot be determined