

Logic Exercise Set #6 (Variations on the Conditional)

SUMMER 2017

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Name _____

Instructions Determine whether the given arguments are valid. (F.Y.I., the symbol \therefore is mathematical shorthand for the word “therefore.”)

1. $(p \rightarrow q) \wedge (q \rightarrow r) \therefore (p \rightarrow r)$
2. $[(p \rightarrow q) \wedge \neg p] \therefore \neg q$
3. $[(p \rightarrow q) \wedge q] \therefore p$
4. No pilots are scubadivers. Some women are scubadivers. Therefore, no women are pilots.
5. Some musicians are tone deaf. Jimmy is tone deaf. Therefore, Jimmy is a musician.
6. All Europeans are well schooled. Some people who are well schooled are interesting. Ben is not interesting. Therefore, Ben is not European.
7. Give the converse and the contrapositive of the following statements:
 - (a) If $x + y = 1$, then $x^2 + y^2 \geq 1$.
 - (b) If $2 + 2 = 4$, then $3 + 3 = 8$.
 - (c) If $x > 0$, then $x^2 > 0$.
 - (d) If my car is not running, then I will walk to school.
 - (e) If I have any money left over, I will pay the rent.