

Geometry 2-2 Logic

Name: _____

Time Start: _____ Finish: _____

Total Time = _____

Consider the following statements:

a: you like flowers

c: you have green eyes

b: you can't run fast

d: you can't whistle

Tell what the following mean.

1. $a \rightarrow b$ _____

2. $a \rightarrow \sim c$ _____

3. $\sim d \rightarrow b$ _____

4. $\sim c \rightarrow \sim b$ _____

5. $c \rightarrow d$ _____

6. $d \rightarrow \sim d$ _____

7. $\sim b \rightarrow \sim c$ _____

_____ 8. "If you have a laptop, then you have a computer" is represented by $p \rightarrow q$.
What is the symbolic representation of "If you have a computer, then you don't have a laptop"? (2007 SOL question)

_____ 9. If $p \rightarrow q$, and $q \rightarrow r$, then (2007 SOL question)

A. $r \rightarrow p$ B. $p \rightarrow r$ C. $\sim r \rightarrow p$ D. $r \rightarrow \sim p$

_____ 10. Let p represent $\sqrt{11} = z$, and let q represent z is a rational number.
Which is a representation of the statement: "If $\sqrt{11} = z$, then z is not a rational number"? (2005 SOL question)

A. $\sim p \rightarrow \sim q$ B. $p \rightarrow q$ C. $p \rightarrow \sim q$ D. $\sim q \rightarrow \sim p$

_____ 11. Consider the following statements:
 p : The sum of two angles is 90° .
 q : The two angles are complements.
Which of the following is a symbolic representation of the statement:
"If two angles are not complements, then the sum of the two angles is not 90° "?
(2004 SOL question)

A. $\sim q \rightarrow \sim p$

B. $\sim p \rightarrow \sim q$

C. $q \rightarrow p$

D. $p \rightarrow q$

12. Let the following represent the given statements:

p: $\angle A$ is acute

q: $\angle B$ is acute

n: $\angle C$ is obtuse

Use symbolic language to represent the following (don't worry if the statement makes any sense or not)

_____ A.) $\angle A$ is acute if and only if $\angle B$ is acute

_____ B.) $\angle A$ is acute or $\angle B$ is acute

_____ C.) Therefore, $\angle A$ is acute and $\angle B$ is acute

_____ D.) If $\angle A$ is acute or $\angle B$ is acute, then $\angle C$ is not obtuse.

_____ E.) If $\angle C$ is obtuse, then $\angle A$ is acute and $\angle B$ is acute.

13. Let p represent $x^2 = 21$

and let q represent x is not a whole number.

Which is a representation of the statement below? _____ (2008 SOL question)

If x is a whole number, then $x^2 \neq 21$.

A. $\sim p \rightarrow \sim q$

B. $\sim p \rightarrow q$

C. $p \rightarrow \sim q$

D. $\sim q \rightarrow \sim p$

14. Let $p =$ An equation is of the form $y = mx + b$.

(2010 SOL question)

Let $q =$ Its graph is a line.

Argument: If an equation is of the form $y = mx + b$, then its graph is a line.

The graph is not a line.

Therefore, the equation is not of the form $y = mx + b$.

Which of the following is a symbolic representation of the given argument? _____

A.
$$\begin{array}{l} p \rightarrow q \\ \sim q \\ \therefore \sim p \end{array}$$

B.
$$\begin{array}{l} p \rightarrow q \\ q \\ \therefore p \end{array}$$

C.
$$\begin{array}{l} p \rightarrow q \\ \sim q \\ \therefore \sim q \end{array}$$

D.
$$\begin{array}{l} p \rightarrow q \\ p \\ \therefore q \end{array}$$