PASSPORT

Welcome to Australia!

G.1 Logic

$\frac{\square}{6}$

1.

Given statement:

If a triangle is equiangular, then it is acute.

Identify the converse, inverse, and contrapositive of the given statement.

converse	inverse	contrapositive

If a triangle is not equiangular, then it is not acute. ☐

If a triangle is not acute, then it is not equiangular. ☐

If a triangle is acute, then it is equiangular. ☐

2. Which could serve as a counterexample to the given statement?

If you are a senior, then the only math you take is Calculus.

a. Daja is a senior and she takes Calculus.
b. Jaysean is a junior and he takes Calculus.
c. Kala is junior and she takes FST.
d. Rodney is a senior and he takes AP Statistics.

3.

Conclusion:

If you get good grades in high school, then you will get into college.

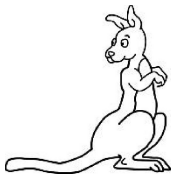
Which could be a valid argument for the given conclusion?

A If you will get into college, then you got good grades in high school.
If you will get into college, then you can join NHS.

B If you get good grades in high school, then you can join NHS.
If you will get into college, then you can join NHS.

C If you get good grades in high school. then you can join NHS.
If you can join NHS, then you will get into college.

D If you get into college, then you can join NHS.
If you can join NHS, then you get good grades in high school.



4. Directions: Write the answer in the correct box.

Given:
***p* represents**
the dog barks

***r* represents**
the dog does not get a bone

***q* represents**
the mailman is in the yard

∨	→	↔
~r	p	q
r	^	
~q	~p	

The dog gets a bone if and only if the mailman is in the yard and she does not bark.

5. Which is a valid conclusion that can be drawn from these statements?

If a triangle is equilateral, then it is equiangular.
If a triangle is equiangular, then it is acute.

a. Every triangle is acute.
b. Every equilateral triangle is acute.
c. Every equiangular triangle is obtuse.
d. Every equilateral triangle is obtuse.

6. Which is the contrapositive of the following statement?

If a rectangle is not a square, then it is not a rhombus.

a. If a rectangle is a not rhombus, then it is not a square.
b. If a rectangle is a rhombus, then it is a square.
c. If a rectangle is a square, then it is a rhombus.
d. If a rectangle is a rhombus, then it is not a square.

BONUS

The radii of two spheres are in a ratio of 1:8. What is the ratio of their volumes?

A. 1:2

B. 1: 24

C. 1: 64

D. 1: 512