

# [Essay on the statement not in a related to negation](https://assignbuster.com/essay-on-the-statement-not-in-a-related-to-negation/)

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## Question#1

Question#2   
The role of “ it is not the case that” or “ it is false that” can be described by the logical operator of negation (~)

## Question#3

This is a well-known case of omnipotence paradox (http://en. wikipedia. org/wiki/Omnipotence\_paradox)   
Generally it is a special case of Russel’s paradox (http://en. wikipedia. org/wiki/Russell%27s\_paradox)   
The bottom line is that we cannot give any affirmative or negative answer to the question. If we say “ yes, he can build the wall, which he couldn’t jump over”, we have a contradiction with the statement, that Zeus could do anything – he can’t jump over the wall, over which he can’ t jump. If we say “ no, he couldn’t”, we have a contradiction again – “ Zeus couldn’t do anything”

## Question#4

a)   
Negation changes the statement into opposite. For example, if the statement is “ all lions are black”, the negation of this statement is “ There are no black lions”   
The complement of two set B and A is the set BA, which consists of those elements of B, which are not in A:

b)   
The conjunction in logic is a reflection of intersection in set theory. The conjunction means a relation “ and” for statements, and intersection of two sets is the set with elements which are in one set AND in other set.   
c)   
Disjunction in logic is a reflection of union in set theory. They both means “ OR”. Disjunction means that one of the statement is true (first or second), the union means the set which elements are from the one set or from the other.

## Question#5

- ~p is False (because p is true), q -> r is True (because q is false and r is true, and false -> true = true), hence ~p -> (q-> r) is True (because false -> true = true)   
3. p is true, q ˄ r is false (because they are not both true), hence p->( q ˄ r) is false (because true -> false = false)   
9. ~p is false, ~q is true, ~p ˅ ~q is true (because one of them is true), ~r is false, hence,   
(~p˅~q) ˅~r is true (because first is true and second is false)

## Question#6

19. A cat has whiskers or a fish can swim, and a chicken lays eggs.

## A cat has whiskers – true

Fish can swim – true   
Chicken lays eggs – false (chicken is too young to lay eggs)   
True and true and false is false.   
22. Honda makes automobiles or Honda makes motorcycles, if and only if Toyota makes cereal

## Honda makes automobiles – true

Honda makes motorcycles – true   
Honda makes automobiles or Honda makes motorcycles – true   
Toyota makes cereal – false   
Honda makes automobiles or Honda makes motorcycles, if and only if Toyota makes cereal – false (because True <-> False = false)   
23. Spike Lee is a movie director, or if Halle Berry is a schoolteacher, then George Clooney is a circus clown.

## Spike Lee is a movie director – true

Halle Berry is a schoolteacher – false   
George Clooney is a circus clown – false   
if Halle Berry is a schoolteacher, then George Clooney is a circus clown – true (because false -> false = true)   
Spike Lee is a movie director, or if Halle Berry is a schoolteacher, then George Clooney is a circus clown – true (because true or true is true)