

→ "It is necessary to wash the boss's car to get promoted"

While the Converse, Inverse and contrapositive of the above statement.

p:- you wash the boss's car

q:- you get promoted.

"If you wash the boss's car then you get promoted"

Converse $q \rightarrow p$:- If you get promoted then you wash the boss's car.

Inverse $\neg p \rightarrow \neg q$:- If you do not wash the boss's car then you will not get promoted.

"you can access the website" \rightarrow q
 "only if you pay a fee" \rightarrow p

or "If you pay a fee then you can access the website"

Contrapositive :- $\neg q \rightarrow \neg p$:-

If you can not access the website then you did not pay a fee.

"Jan will go swimming unless the water is too cold"

or
 "If the water is too cold then Jan will not go swimming"

If the water is not too cold then Jan will go swimming.

If the water is not too cold then Jan will go swimming.

Inverse: $\neg p \rightarrow \neg q$

If the water is not too cold then Jan will go swimming.

$$p \rightarrow q$$

$$q$$

What is the converse of the conditional statement "If it ices today, I will play ice hockey tomorrow."

a) "I will play ice hockey tomorrow only if it ices today."

b) "If I do not play ice hockey tomorrow, then it will not have iced today."

c) "If it does not ice today, then I will not play ice hockey tomorrow."

d) "I will not play ice hockey tomorrow only if it ices today."

$$p \rightarrow q$$

$$\neg q \rightarrow \neg p$$

$$\neg p \rightarrow \neg q$$

$$p \rightarrow \neg q$$

$$q \rightarrow p$$

$$p$$

If I will play ice hockey tomorrow then it ices today

Given

Converse

Inverse

Contrapositive

$\neg p$	$\neg q$	p	q	$p \rightarrow q$	$q \rightarrow p$	$\neg p \rightarrow \neg q$	$\neg q \rightarrow \neg p$
F	T	T	T	T	T	T	T
F	F	T	F	F	T	T	F
T	F	F	T	T	F	F	T
T	T	F	F	T	T	T	T

$$(p \rightarrow q) \equiv \neg q \rightarrow \neg p$$

$$q \rightarrow p \equiv \neg p \rightarrow \neg q$$

$q \rightarrow p$ Converse of the statement "If you are honest, then you are respected."

- a) If You are honest then he is not respected.
- b) If You are not respected than you are not honest.
- c) If you are not honest then you are not respected.
- d) If you are respected then you are honest.

$$p \rightarrow q$$

Converse

$$q \rightarrow p$$

Inverse

$$\neg p \rightarrow \neg q$$

Contrapositive

$$\neg q \rightarrow \neg p$$

If it has divisors other than 1 and itself then a positive integer is a composite.

$$q$$

$$p$$

U P
7. What are the inverse of the conditional statement "A positive integer is a composite only if it has divisors other than 1 and itself."

- ✓ a) "A positive integer is a composite if it has divisors other than 1 and itself."
b) "If a positive integer has no divisors other than 1 and itself, then it is not composite."
c) "If a positive integer is not composite, then it has no divisors other than 1 and itself."
d) None of the mentioned

Inverse

$\neg P \rightarrow \neg q$

$\neg q \rightarrow \neg P$

Which of the following statements is the negation of the statements "4 is odd or -9 is positive"?

- Xa) 4 is even or -9 is not negative
Xb) 4 is odd or -9 is not negative
c) 4 is even and -9 is negative
d) 4 is odd and -9 is not negative

$$\neg (P \vee q) \equiv \underline{\neg P \wedge \neg q}$$

$\neg (P \vee q) \equiv \neg P \wedge \neg q$