

REVIEW CONDITIONALS

WRITE THE NEGATION OF EACH STATEMENT

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|---------------------------------------|--|
| 1) Aspirin relieves pain. | 2) Not every banker is rich. |
| 3) $2 + 4 = 8$ | 4) <u>For every</u> question there is an answer. |
| 5) There are thirty days in February. | 6) Apples are not vegetables. |

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- 1) Aspirin does not relieve pain
- 2) Every banker is rich.
- 3) $2 + 4 \neq 8$
- 4) For every question, there is not an answer.
- 5) There are not thirty days in February.
- 6) Apples are vegetables.

IDENTIFY THE HYPOTHESIS AND CONCLUSION OF EACH CONDITIONAL.

- 7) The picnic will be cancelled if it rains.
- hypothesis: It rains conclusion: the picnic will be cancelled
- 8) Mary does well in school when she gets enough sleep.
- hypothesis: she gets enough sleep conclusion: Mary does well in school

REWRITE EACH STATEMENT IN "IF-THEN" FORM.

9) The train will be late if it snows.

If it snows, then the train will be late.

10) I know he was there because I saw him.

If I saw him, then I know he was there.

11) The person who steals will surely be caught.

If a person steals, then they will surely be caught.

12) With your looks, I'd be a movie star.

If I had your looks, then I'd be a movie star.

13) The dog days of summer are never easy to stand.

If these are the dog days of summer, then they are never easy to stand.

14) An old dog can learn new tricks.

If a dog is old, then it can learn new tricks.

WRITE THE CONVERSE, INVERSE, AND CONTRAPOSITIVE OF EACH CONDITIONAL.

15) CONDITIONAL: If you make good grades, then you study hard.

CONVERSE:

If you study hard, then you will make good grades.

INVERSE:

If you do not make good grades, then you do not study hard.

CONTRAPOSITIVE:

If you do not study hard, then you will not make good grades.

BICONDITIONAL:

You make good grades, if and only if, you study hard.

conditional: If p , then q

Converse: If q , then p

INVERSE: If $\sim p$, then $\sim q$

Contrapositive: If $\sim q$, then $\sim p$

biconditional: p if and only if q

18) **CONDITIONAL:** If this is September, then I am in school.
 CONVERSE:

If I am in school, then this is September.

INVERSE:

If this is not September, then I am not in school.

CONTRAPOSITIVE:

If I am not in school, then this is not September.

BICONDITIONAL:

This is September, if and only if, I am in school.

WRITE THE CONDITIONAL, GIVEN THE INDICATED STATEMENT.

19) **INVERSE:** If you do not pay attention, then you will not do well on this test.

CONDITIONAL:

20) **CONVERSE:** If today is Friday, then I am going to the football game.

CONDITIONAL:

19) If you pay attention, then you will do well on this test.

20) If I am going to the football game, then today is Friday.

Which Law does the following illustrate? If a valid conclusion can be written, do so. If not, then write, "No Conclusion."

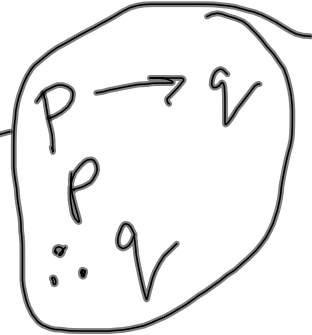
21) If Airline wins Friday, they will be in second place. Airline wins Friday.

$p \longrightarrow q$

(p)

Detachment

\therefore Airline will be in second place.



q

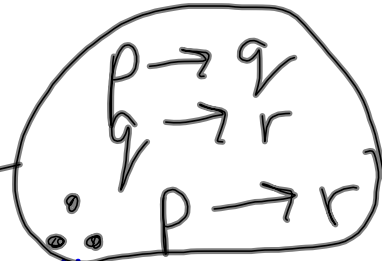
22) If you go to the doctor, then you must be sick. If you are sick, then the doctor will give you medicine.

$p \longrightarrow q \quad q \longrightarrow r$

$\therefore p \longrightarrow r$

Syllogism

If you go to the doctor, then he will give you medicine



r

23) GIVEN: $-6 = 2(x + 2)$ *1st*
 PROVE: $x = -5$ *Last*

statements	reasons
1) $-6 = 2(x + 2)$	1) GIVEN
2) $-6 = 2x + 4$	2) Distributive
3) $-10 = 2x$	3) Subtr. prop. of =
4) $-5 = x$	4) Div. prop. of =
5) $x = -5$	5) Symmetric

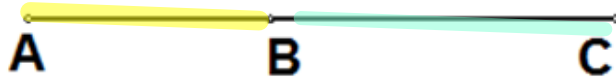
24) GIVEN: $4 - 7x = 25$
 PROVE: $x = -3$

statements	reasons
1) $4 - 7x = 25$	1) GIVEN
2) $-7x = 21$	2) Subtr. prop. of =
3) $x = -3$	3) Div. prop. of =

25)

B is between A + C

GIVEN: \overline{ABC}

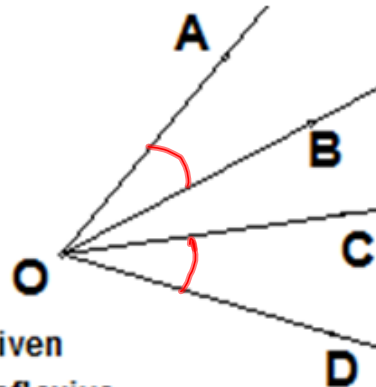


PROVE: $AB = AC - BC$

Statements	Reasons
1) \overline{ABC}	1) Given
2) $AB + BC = AC$	2) Segment add. post.
3) $\overline{BC} = \overline{BC}$	3) reflexive
4) $AB = AC - BC$	4) Subtr. prop. of =

26)

GIVEN: $m\angle AOB = m\angle COD$
 PROVE: $m\angle AOC = m\angle BOD$



- 1) $m\angle AOB = m\angle COD$
- 2) $m\angle BOC = m\angle BOC$
- 3) $m\angle AOB + m\angle BOC =$
 $m\angle BOC + m\angle COD$
- 4) $m\angle AOB + m\angle BOC = \underline{m\angle AOC}$
 $m\angle BOC + m\angle COD = \underline{m\angle BOD}$
- 5) $m\angle AOC = m\angle BOD$

- 1) given
- 2) reflexive
- 3) add. prop. of =
- 4) \angle add. postulate
- 5) substitution