

Geometry  
Worksheet 2.1 Conditional Statements

Name: \_\_\_\_\_

For each conditional, circle the hypothesis and underline the conclusion.

1. If the weather is warm, then we should go swimming.
2.  $2x - 12 = 40$  only if  $x = 26$ .
3.  $8y = 40$  implies  $y = 5$ .
4. If the groundhog sees its shadow, then there will be six more weeks of winter.

Rewrite the conditional statements in if-then form.

5. Today is Monday if yesterday was Sunday.
6. A number is divisible by 4 if it is divisible by 8.
7. An acute angle is an angle that measures less than  $90^\circ$ .

Decide whether the statement is true or false. If false, provide a counterexample.

8. The equation  $2x - 7 = 5 + x$  has exactly one solution.
9. A point may line on at most two lines.
10. If  $n^2 = 5n$ , then  $n = 5$ .
11. If you visited the Statue of Liberty, then you've been to New York.

Complete the table for each conditional statement

12.		True or False?
Statement	If $-2n < 6$ , then $n > -3$	
Inverse		
Converse		
Contrapositive		

13.		True or False?
Statement	If $x = -6$ , then $ x  = 6$	
Inverse		
Converse		
Contrapositive		

14.		True or False?
Statement	If points D, E, and F are collinear, then $DE + EF = DF$	
Inverse		
Converse		
Contrapositive		

15. Write a definition of congruent angles as a biconditional.

16. Write a definition of a right angle as a biconditional.

What can you conclude by using the given statement together with each additional statement? If no conclusion is possible, say so.

17. Given: If it is not raining, then I am happy.

- a. I am not happy.
- b. It is not raining.
- c. I am overjoyed.
- d. It is raining.

18. Given. All my students love geometry.

- a. PJ is my student.
- b. Audrey loves geometry.
- c. Julie is not my student.
- d. Kelly does not love geometry.

19. Given: All senators are at least 30 years old.

- a. Jose Avila is 48 years old.
- b. Dianne Feinstein is a senator.
- c. Jeff Anderson is not a senator.
- d. Dexiang Lei is 21 years old.

20. What simpler name can be used for the converse of the inverse of a conditional?