



- 6) Your classmate claims that the conditional and contrapositive of the following statement are both true. Is he/she correct? Explain.

$$\text{If } x = 2, \text{ then } x^2 = 4.$$

- 7) Write a true conditional that has a true converse.

- 8) Write a true conditional that has a false converse.

**Draw a venn diagram to represent each statement.**

- 9) If an angle measures 105 degrees, then it is obtuse.

- 10) If  $x = 2$ , then  $x^4 = 16$ .

11) If two angles add to 90 degrees, then the two angles are complementary.

**Write the converse of each statement. If the converse is true, write TRUE. If it is false, provide a counterexample to support your argument.**

12) If  $x = -6$ , then  $|x| = 6$ .

13) If  $y$  is negative, then  $-y$  is positive.

14) If  $x < 0$ , then  $x^3 < 0$ .

15) If  $x < 0$ , then  $x^2 > 0$ .

**Write each postulate as a conditional statement.**

16) Two intersecting lines meet in exactly one point.

17) Two congruent figures have equal areas.

18) Which conditional and its converse form a true biconditional statement?

- A) If  $x > 0$ , then  $|x| > 0$ .      B) If  $x = 3$ , then  $x^2 = 9$ .  
C) If  $x^3 = 5$ , then  $x = 125$ .      D) If  $x = 19$ , then  $2x - 3 = 35$ .

**Write each statement as a biconditional.**

19) Points in Quadrant III have two negative coordinates.

20) When the sum of the digits of an integer is divisible by 9, then the integer is divisible by 9 and vice versa.

21) The whole numbers are nonnegative integers.

22) An angle with a measure between  $90^\circ$  and  $180^\circ$  is called obtuse.

23) How can you show that the statement, "If you play a sport, then you wear a helmet." is false? Explain.