

Directions: Identify the hypothesis and conclusion of each conditional.

1) If you can see the sun, then it is daytime.

Hypothesis: You can see the sun.

Conclusion: It is daytime.

3) If two angles form a linear pair, then the angles are supplementary.

Hypothesis: 2 \angle 's form a lin pr.

Conclusion: The \angle 's are supp.

2) If a figure has 8 sides, then it is an octagon.

Hypothesis: A figure has 8 sides.

Conclusion: It is an octagon.

4) If $x + 3 = 8$, then $8 = x + 3$.

Hypothesis: $x + 3 = 8$

Conclusion: $8 = x + 3$

Directions: Write a conditional statement.

6) Congruent angles have equal measures.

If 2 \angle 's are \cong , then the \angle 's have equal measures.

7) Alternate exterior angles are congruent when two lines are parallel and cut by a transversal.

If 2 alt. ext. \angle 's are \cong , then 2 lines are \parallel .

6) On Wednesday, soccer practice is at 5:00.

If it is Wednesday, then soccer practice is at 5:00.

8) Two perpendicular lines form four right angles.

If 2 lines are \perp , then the lines form 4 right \angle 's.

Directions: Show that the conditional statement is false by finding a counterexample.

9) If a number is divisible by 5, then it is odd.

10 is divisible by 5 but it is even.

11) If $x > 3$, then $x > 5$.

x could be 4 which is greater than 3 but not greater than 5.

13) If $x^2 = 49$, then $x = 7$.

x could equal -7 because $(-7)^2 = 49$

10) If an animal is an insect, then it is a fly.

An ant is an insect, but it is not a fly.

12) If $\angle A$ & $\angle B$ are supplementary, then $m\angle A = 120^\circ$ & $m\angle B = 60^\circ$.

The $m\angle A$ could equal 100° & the $m\angle B$ could equal 80° . Then they are still supplementary.

14) If two lines are \parallel , cut by a transversal, then the same side interior angles are \neq .

The same side interior \angle 's could both be 90° which would make them \cong .

Directions: Write the definition as a biconditional.

15) An isosceles triangle has at least 2 \cong sides.

A \triangle is isosceles iff it has at least 2 \cong sides.

16) Adjacent \angle 's are 2 \angle 's that share a side.

2 \angle 's are adjacent iff the 2 \angle 's share a side.

Directions: Write the converse, inverse, and contrapositive. Then find the truth value for each statement. If appropriate, then write the biconditional statement.

17) If an angle is 90° , then it is a right angle.

T F Converse: If an \angle is a right \angle , then the \angle is 90° .

T F Inverse: If an \angle is NOT 90° , then it is NOT a right \angle .

T F Contrapositive: If an \angle is NOT a right \angle , then the \angle is not 90° .

T F Biconditional: An \angle is 90° IFF it is a right \angle .

18) If two angles are right angles, then the angles are congruent.

T F Converse: If 2 \angle 's are \cong , then the 2 \angle 's are right \angle 's.

T F Inverse: If 2 \angle 's are not right \angle 's, then the \angle 's are not \cong .

T F Contrapositive: If 2 \angle 's are not \cong , then the 2 \angle 's are not right \angle 's.

T F Biconditional: No biconditional can be written.

19) If two lines are perpendicular, then they form right angles.

T F Converse: If 2 lines form right \angle 's, then the 2 lines are \perp .

T F Inverse: If 2 lines are not \perp , then they do not form right \angle 's.

T F Contrapositive: If 2 lines do not form right \angle 's, then they are not \perp .

T F Biconditional: 2 lines are \perp IFF they form right \angle 's.

20) If a figure is a rectangle, then it has 4 sides.

T F Converse: If a figure has 4 sides, then the figure is a rectangle.

T F Inverse: If a figure is NOT a rectangle, then it does NOT have 4 sides.

T F Contrapositive: If a figure does not have 4 sides, then it is not a rectangle.

T F Biconditional: No biconditional can be written.