**Do Now** (use your notebook)

**1.** In the diagram at right,  and  are called what kind of angles?

**2.**  and  have what relationship?

**3.** What would you call the angle pair  and ?

**4.** Name two pairs of corresponding angles.

a. b.

**5.** In the diagram at right,  intersects what line? Use proper notation.



**6.** At right, name two angles that form linear pairs with .

a. b.

**7.**



In the diagram immediately above, the following is given: . What is ?

**Homework makeup for 17 October**

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**Test: Logic, Angle Relationships, and Coordinate Geometry**

1. What is the coordinate pair of the center of the circle at right?

2. Circle the hypothesis in the following conditional statement:

If two lines are perpendicular, then they intersect at right angles.

3. Of two supplementary angles, one has a measure of 50 degrees. What is the measure of the other angle?



4. In the construction at right, name two perpendicular lines or line segments. Use proper notation.

5. A rectangle has sides of length 3 and 4.

a. What is the area of the rectangle?

b. What is the length of the diagonal of the rectangle?



1. In the prism above, . What other segments are parallel to ?

2. Name as many segments as you can that are skew with .

6. In the diagram of the pyramid at right, the points *B, E,* and *C* are coplanar. What other point shown is on the same plane?

7. State the negation of the following statement:

Geometry is my favorite subject.

10. Given the conditional statement, “If today is Thursday, then tomorrow is Friday,”

a. What is the truth value of the statement?

b. What is the converse of the statement?

11. What is the truth value of the conditional statement, if a point is the midpoint of a line segment, then it divides the segment into two congruent line segments?

1. Is a square a rectangle?

6. State the midpoint formula.

**Do Now Quiz**



1. In the prism above, points *A, B,* and *C* are coplanar. What other points are in the same plane?

2. One face of the prism above is the rectangle with vertices *B, C, H,* and what other point?

4. Given the conditional statement:

If today is Tuesday, then today is a weekday.

What is contrapositive of the statement?

**Do Now Quiz**

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1. Name three collinear points.

2. Name two angles that make up a linear pair.

3. If point *B* is the midpoint of  what equation can you state relating the lengths of two segments?

4. Given the conditional statement:

If two lines intersecting a transversal line are parallel, then the alternate interior angles are congruent.

1

2

3

What is converse of the statement?

5. In the diagram at right, what is the sum of the   
  
measures of  and?

6. What do all of the radii of a circle have in common?

**Do Now Quiz**



a. What point is coplanar with *F, G,* and *H*?

b. Are the points *A, D, E,* and *H* coplanar?

2. Given the conditional statement:

If  and are supplementary angles, then the sum of and is 180 degrees.

a. What is truth value of the statement?

1

2

3

b. What is its inverse and the inverse’s truth value?

3. What is the converse of the following conditional statement?

If rain is forecast, then you need an umbrella.

4. Pedro says that to calculate the area of a square, just take any two vertices, calculate the distance between them, and square that distance for the area. Samantha says that doesn’t always work. Who is right and why?

**Do Now Quiz**



a. What point is coplanar with *B, F,* and *C*?

b. Are the points *D, E,* and *F* collinear?

2. Given the conditional statement:

If  and are vertical angles, then  and are congruent.

1

?

?

a. What is truth value of the statement?

b. What is the converse and its truth value?

3. What is the contrapositive of the following conditional statement?

If you study hard, then you will succeed.

4. For the length of the horizontal line segment, we can use either equation. Why is the result them same? Which equation is simpler?



**Do Now Quiz**

Given the conditional statement:

If  and are a linear pair, then  and are supplementary.

1

?

?

**State the required term. Circle its truth value.**

Hypothesis:

Conclusion:

Converse: (True / False)

Inverse: (True / False)

Contrapositive: (True / False)

Negation of the hypothesis:

Biconditional: (True / False)

Disjunction:

Conjunction:

What three things are wrong with this equation for the length *AB*?



**5.**

**

**6.**

**

**7.**

**

**8.**

Compare these two statements and their converses:

1. If two angles are linear pairs then the sum of their measures is 180 degrees.
2. If two angles are supplementary then the sum of their measures is 180 degrees.

What is the truth value of their converses? Why are they different? Which term is more restrictive, linear pairs or supplementary? Explain.

**Notes:** An example of terms in logic. Ideas you must understand and be able to apply.

**Hypothesis**: Two segments are congruent 

**Negation**: Two segments are not congruent   
(or It is not the case that two segments are congruent)

**Conclusion**: They have the same length. 

**Conditional**: If two segments are congruent, then they have the same length. 

**Converse**: If they have the same length, then two segments are congruent. 

**Inverse**: If two segments are *not* congruent, then they do *not* have the same length. 

**Contrapositive**: If they do not have the same length, then two segments are not congruent.   
 

**Biconditional**: If two segments are congruent, then they have the same length, and if they have the same length, then two segments are congruent. 

**Conjunction**: Two segments are congruent *and* they have the same length. 

**Disjunction**: Two segments are congruent *or* they have the same length. 

**Truth value**: Whether a statement is true or false.

Truth table:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *p* | *q* |  | ~*q* | ~*p* |  |
| T | T | T | F | F | T |
| T | F | F | T | F | F |
| F | T | T | F | T | T |
| F | F | T | T | T | T |

Note that the conditional and contrapositive always have the same truth value. Think about it!