Geometry Chapter 2 Practice Free Response Test

Directions: Read each question carefully. Show ALL work. No work, No credit. This is a closed note and book test.

1. Identify Hypothesis and Conclusion of the following statement.

If two angles are supplementary, then their sum equals 180 degrees.

Hypothesis:_____ (1)

Conclusion:_____(1)

2-3 Write a converse of each statement and determine if it is true or false.

2. If two segments are congruent, then their lengths are equal.

Converse:_____(2)

True or False:_____(1)

3. If a figure is a triangle, then it has three sides.

Converse:_____(2)

True or False:_____(1)

4. Write the following definition as a biconditional.

A straight angle measures 180 degrees.

Biconditional:_____(4)

5. Write a converse, inverse and contrapositive for the statement:

If a figure is a hexagon, then it has six sides.

a) Inverse:_____ (2)

b) Converse:_____ (2)

c) Contrapositive:_____ (2)

6-8 Determine if a valid conclusion can be reached from two true statements. If a valid conclusion is possible, state is and the law that was used. If a valid conclusion does not follow, write no conclusion.

6 .   a) If you spend money on it, then it's a business.
         b)   If you spend money on it, then it is fun.

Conclusion:_____(2)

Law of _____(2)

7.   a) If an angle is obtuse, then its measure is greater than 90 degrees.
        b) Angle 2 is obtuse.

Conclusion:_____(2)

Law of _____(2)

8.   a) If two angles are vertical, then they are congruent.
        a.   If two angles are congruent, then their measures are equal.

Conclusion:_____(2)

Law of _____(2)

9. Explain why this is or is not a good definition.   (2)

A segment is part of a line.

10. Find the measures of two complementary angles, $\angle A$ and $\angle B$, if
$m\angle A = 7x + 4$ and $m\angle B = 4x + 9$.

x=_____(2)

<A=_____(2)

<B=_____(2)

Geometry Chapter 2 Practice Free Response Test

11. Fill in the reason for each step.

Given: $2x - 7 = \dfrac{1}{3}x - 2$

Prove: $x = 3$

Statement	Reason
1. $2x - 7 = \dfrac{1}{3}x - 2$	1. (2)
2. $3(2x - 7) = 3(\dfrac{1}{3}x - 2)$	2. (2)
3. $6x - 21 = x - 6$	3. (2)
4. $5x - 21 = -6$	4. (2)
5. $5x = 15$	5. (2)
6. $x = 3$	6. (2)

12-16 Name the property that justifies each statement.

12. *If UV = KL and KL = 6, then UV = 6*   12._____(2)

13. *If $m\angle 1 + m\angle 2 = m\angle 4 + m\angle 2$, then $m\angle 1 = m\angle 4$*   13._____(2)

14. $\angle ABC \cong \angle ABC$ 14._____(2)

15. *If $\dfrac{1}{2}m\angle D = 45$, then $m\angle D = 90$*   15._____(2)

16. *If $\angle DEF \cong \angle HJK$, then $\angle HJK \cong \angle DEF$*   16._____(2)

Geometry Chapter 2 Practice Free Response Test

17-23 True or False. Write you answer clearly. Answers marked unclearly will be counted as wrong.

17. All right angles are congruent.   17. _____(2)

18. Two angles that form a right angle are   18._____(2)
complimentary.

19. Two angles that are supplementary are always   19. _____(2)
congruent.

20. Two angles that supplementary are also   20._____(2)
complementary.

21. Vertical angles are always congruent.   21._____(2)

22. A conclusion is a part of a conditional following IF   22._____(2)

23. A biconditional statement is a combination of a   23._____(2)
conditional and its inverse.

24-28 Complete each sentence with *sometimes*, *always*, or *never*.

24. Two angles that are supplementary _____ form a   24._____(2)
    linear pair.

25._____(2)

25. Two angles that are congruent are _____ right.

26._____(2)

26. An angle is _____ congruent to itself.

27._____(2)

27. Vertical angles are _____ adjacent.

28._____(2)

28. Adjacent angles are _____ congruent.

Geometry Chapter 2 Practice Free Response Test - ANSWERS

Directions: Read each question carefully. Show ALL work. No work, No credit. This is a closed note and book test.

1. Identify Hypothesis and Conclusion of the following statement.

If two angles are supplementary, then their sum equals 180 degrees.

Hypothesis:_____ *two angles are supplementary* _____ (1)

Conclusion:_____ *their sum equals 180 degrees* _____(1)

2-3 Write a converse of each statement and determine if it is true or false.

2. If two segments are congruent, then their lengths are equal.

Converse:_____ If two segments lengths are equal, then they are congruent. (2)

True or False:_____true_____(1)

3. If a figure is a triangle, then it has three sides.

Converse:_____ If a figure has three sides, then it is a triangle. _____(2)

True or False:_____true_____(1)

4. Write the following definition as a biconditional.

A straight angle measures 180 degrees.

Biconditional   An angle is straight if and only if it is 180 degrees._____(4)

5. Write a converse, inverse and contrapositive for the statement:

If a figure is a hexagon, then it has six sides.

a) Inverse: If a figure is not a hexagon, then it does not have six sides.   (2)

b) Converse: If a figure has six sides, then it is a hexagon.   (2)

c) Contrapositive: If a figure does not have six sides, then it is not a hexagon   (2)

Geometry Chapter 2 Practice Free Response Test - ANSWERS

6-8 Determine if a valid conclusion can be reached from two true statements. If a valid conclusion is possible, state is and the law that was used. If a valid conclusion does not follow, write no conclusion.

    6 .   a) If you spend money on it, then it's a business.
                b)   If you spend money on it, then it is fun.

Conclusion: no conclusion possible   (2)

Law of _____(2)

    7.   a) If an angle is obtuse, then its measure is greater than 90 degrees.
            b) Angle 2 is obtuse.

Conclusion:_Angle 2 has a measure greater than 90 degrees _(2)

Law of _____ Syllogism _____(2)

    8.   a) If two angles are vertical, then they are congruent.
            b) If two angles are congruent, then their measures are equal.

Conclusion:__If two angles are vertical then their measures are equal_____(2)

Law of _____ Syllogism _____(2)

    9. Explain why this is or is not a good definition.   (2)

A segment is part of a line.

This is not a good definition because a part of a line could also be a ray.

10. Find the measures of two complementary angles, $\angle A \, and \, \angle B$, if
$m\angle A = 7x + 4 \; and \; m\angle B = 4x + 9$.

$$7x + 4 + 4x + 9 = 90 \qquad x=\_\_\_7\_\_\_(2)$$
$$11x + 13 = 90$$
$$11x = 77 \qquad\qquad <A=\_\_53\_\_\_(2)$$
$$x = 7 \qquad\qquad <B=\_\_\_37\_\_\_(2)$$

11. Fill in the reason for each step.

Given: $2x - 7 = \dfrac{1}{3}x - 2$

Prove: $x = 3$

Statement	Reason
1. $2x - 7 = \dfrac{1}{3}x - 2$	1. Given (2)
2. $3(2x - 7) = 3(\dfrac{1}{3}x - 2)$	2. Multiplication Property (2)
3. $6x - 21 = x - 6$	3. Distributive Property 2)
4. $5x - 21 = -6$	4. Subtraction Property (2)
5. $5x = 15$	5. Addition Property (2)
6. $x = 3$	6. Division Property (2)

12-16 Name the property that justifies each statement.

12. *If UV = KL and KL = 6, then UV = 6* 12.___Substitution Property_____(2)

13. *If $m\angle 1 + m\angle 2 = m\angle 4 + m\angle 2$, then $m\angle 1 = m\angle 4$* 13.___Subtraction Property_____(2)

14. $\angle ABC \cong \angle ABC$ 14.___Reflexive Property_____(2)

15. *If $\dfrac{1}{2}m\angle D = 45$, then $m\angle D = 90$* 15.___Multiplication Property___(2)

16. *If $\angle DEF \cong \angle HJK$, then $\angle HJK \cong \angle DEF$* 16.___Symmetric Property_____(2)

Geometry Chapter 2 Practice Free Response Test - ANSWERS

17-23 True or False. Write you answer clearly. Answers marked unclearly will be counted as wrong.

17. All right angles are congruent.   17. _____true_____(2)

18. Two angles that form a right angle are   18_____true_____(2)
complimentary.

19. Two angles that are supplementary are always   19. _____false_____(2)
congruent.

20. Two angles that supplementary are also   20_____false_____(2)
complementary.

21. Vertical angles are always congruent.   21_____true_____(2)

22. A conclusion is a part of a conditional following IF   22_____false_____(2)

23. A biconditional statement is a combination of a   23_____false_____(2)
conditional and its inverse.

24-28 Complete each sentence with *sometimes*, *always*, or *never*.

24. Two angles that are supplementary _____ form a   24._____sometimes____(2)
    linear pair.

25. Two angles that are congruent are _____ right.   25._____sometimes____(2)

                                                        26._____always____(2)
26. An angle is _____ congruent to itself.

                                                        27._____never____(2)
27. Vertical angles are _____ adjacent.

                                                        28._____sometimes____(2)
28. Adjacent angles are _____ congruent.