Name: _____ Date: _____ Period: _____ Form C

Geometry Chapter 2 Test

Directions: Read the directions for each question carefully. Complete work and write your answer in the designated box. Attempt EVERY problem. Show ALL work. NO work = NO credit. Good Luck! :)

1. Based on the pattern, what are the next two terms of the sequence?
$7, \frac{7}{4}, \frac{7}{16}, \frac{7}{64}, \frac{7}{256}, \ldots$

1. 1024, 4096 [6]

2. What conjecture can you make about the sum of the first 30 positive even numbers?

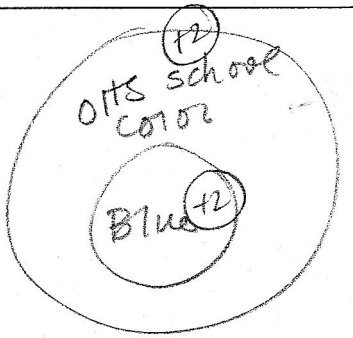
$2 = 2 = 1 \cdot 2$
$2+4 = 6 = 2 \cdot 3$
$2+4+6 = 12 = 3 \cdot 4$
$2+4+6+8 = 20 = 4 \cdot 5$
$2+4+6+8+10 = 30 = 5 \cdot 6$

2. $30 \cdot 31 = 930$ [5]

3. Identify the hypothesis and conclusion of this conditional statement:
If today is Wednesday, then tomorrow is Thursday.

3. Hypothesis: today is Wed
Conclusion: tom is Thurs [4]

4. Draw Venn diagram to illustrate this conditional:
Blue is a OHS school Color

4. 

[4]

5. Determine whether the conditional and its converse are both true. If both are true, combine them as a biconditional. If either is false, give a counterexample.
If two angles are complementary, then their sum is 90
If two angles have a sum of 90, then the angles are complimentary.

5. **Circle:**
Conditional: (true) false
Converse: (true) false
Fill in appropriate one:
Biconditional: 2 ∠'s are comp. if and only if sum is 90
or
Counterexample: _____ [8]

6. Write the two conditional statements that make up the following biconditional.
Susan washes her car if (and only if) it doesn't rain.

+3

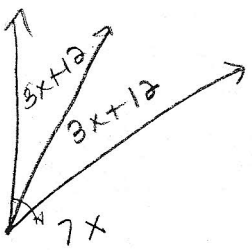
6.
Statement 1: If Susan washes her car then it doesn't rain

+3

Statement 2: If it doesn't rain then Susan washes her car

6

7. $\overline{BD}$ bisects $\angle ABC$. $m\angle ABC = 7x$. $m\angle ABD = 3x + 12$. Find $m\angle DBC$.



$3x+12+3x+12=7x$ (+3)

$6x+24=7x$

$24=x$ (+2)

$3(24)+12=84$ (+2)

7. $m\angle DBC =$ 84

+8

8. Use the Multiplication Property of Equality to complete the statement.
If $3x \div 9 = 45$, then _____.

8. $3x = 405$

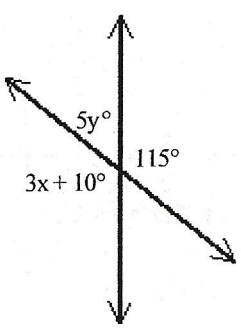
+4

9. Name the Property of Congruence that justifies this statement.
If $\angle M \cong \angle N$ and $\angle N \cong \angle O$, then $\angle M \cong \angle O$.

9. transitive

4

10. Find the values of x and y.



Drawing not to scale

$3x+10=115$ (+3)

$3x=105$

$x=35$ (+2)

$5y+115=180$ (+3)

$-115\ \ -115$

$5y=65$

$y=13$ (+2)

10. x= 35

y= 13

10

+32

11. What are the converse, inverse, and contrapositive of the following true conditional?
If $x = 7$, then $x^2 = 49$.

11.
Converse: If $x^2 = 49$ then $x = 7$ (+3)

Inverse: If $x \neq 7$ then $x^2 \neq 49$ (+3)

Contrapositive: If $x^2 \neq 49$ then $x \neq 7$ (+3)

+9

#12-14 Use the box below for help

Angle Addition Postulate	Reflexive Property of Equality	Vertical Angle Theorem
Segment Addition Postulate	Symmetric Property of Equality	Given
Addition Property of Equality	Transitive Property of Equality	Simplify
Subtraction Property of Equality	Reflexive Property of Congruence	
Multiplication Property of Equality	Symmetric Property of Congruence	
Division Property of Equality	Transitive Property of Congruence	

12. What is the value of x? Justify each step.
$AC = 20$

Drawing not to scale

$AB + BC = AC$ a. ____

$5x + 4x + 2 = 20$ b. ____

$9x + 2 = 20$ c. ____

$9x = 18$ d. ____

$x = 2$ e. ____

12. a) seg add post (+3)

b) substitution (+2)

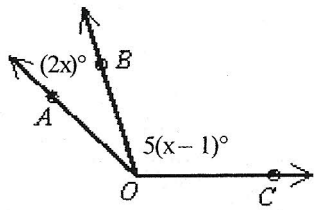
c) simplify (+2)

d) sub prop of = (+2)

e) div prop of = (+2)

+20

13. What is the value of x? Identify the missing justifications.



Drawing not to scale

$m\angle AOC = 135$

$m\angle AOB + m\angle BOC = m\angle AOC$ a. ____

$2x + 5(x - 1) = 135$ b. ____

$2x + 5x - 5 = 135$ c. ____

$7x - 5 = 135$ d. ____

$7x = 140$ e. ____

$x = 20$ f. ____

13.a) L add post (+3)

b) substitution (+2)

c) distributive (+2)

d) simplify (+2)

e) add prop of − (+2)

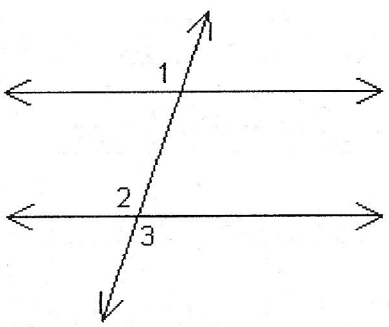
f) div prop of = (+2)

+13

14. Complete the two-column proof.

Given: $\angle 1 \cong \angle 2$, $m\angle 1 = 118$

Prove: $m\angle 3 = 118$



Drawing not to scale

$\angle 1 \cong \angle 2$, $m\angle 1 = 118$ a. ____

$m\angle 2 = 118$ b. ____

$m\angle 2 = m\angle 3$ c. ____

$m\angle 3 = 118$ d. ____

14. a) given (+2)

b) substitution (+2)

c) vertical L's (+2)

d) substitution def of vert L's (+2)

+8

+21