Name:_____ **Date:**_____ **Score:**_____

Describing a Mathematical System

A. DIRECTIONS: Fill in the blanks with the correct words**,** or phrases to make the statements **meaningfully** correct. You may choose from the box below.

angle	parallel lines	point	right angle
line	perpendicular lines	postulates	theorems
line segment	plane	ray	undefined terms

1. A _____ has no dimension. It has an exact location in space.
2. An _____ is a figure formed by two noncollinear rays with a common endpoint called the vertex.
3. Two lines that intersect which form right angles are called _____.
4. Statements proven from definitions, postulates, or using operations from facts that were already known are called _____.
5. A _____ is a collection of points along a straight path that extends endlessly in both directions.
6. An angle whose measure is exactly 90° is called a _____.
7. Statements that are assumed to be true without proof are called _____.
8. A _____ extends infinitely in two dimensions. It has no thickness and is named by three points that do not lie on the same line.
9. A _____ is a part of a line having two endpoints.
10. Two lines that lie in the same plane and do not intersect are called _____.

B. DIRECTIONS: Underline the statement, group of words, or phrases that describe a component of a mathematical system. Identify the component you underlined and write your answer on the space provided before each number.

_____1. Marikina City is known as the Shoe Capital of the Philippines.

_____2. Some people believe that COVID-19 is not a deadly virus.

_____3. If you shoot a laser towards the sky you can see a line that extends infinitely more than what your naked eye can see.

_____4. The hinge of the door when being opened shows different measurements of angles.

_____5. According to studies, staying indoors and frequently washing of hands can help prevent the spread of virus.

Mathematical System: Postulates and Proof

C. DIRECTION: Identify the properties exhibited in each item.

1. If x + y = 3, then x + y – 3 = 0 _____
2. If a + b = c and c – 7 = d, then (a + b) – 7 = d _____
3. If $\frac{m}{4}$ = 5, then m = 20 _____
4. If k + 9 = 9, then 9 = k + 9. _____
5. If 12xy = x – y + 5, then x – y + 5 = 12xy _____
6. If x – 100 = y + 10, then x = y + 110 _____
7. If $7xy = 49x^2$ and $x \neq 0$, then y = 7x _____
8. If $2xy(x + 3y - 1)$, then $2x^2y + 6xy^2 – 2xy$ _____
9. ∠x = ∠x _____
10. If 2x + 7y = 3z and 3z = 2y + 5, then 2x + 7y = 2y + 5 _____

D. DIRECTION: Complete the given two-column proof with the correct property.

Given: 4 (2x + y – 3) = 10x + 2y

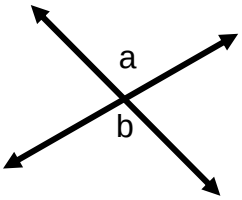
Prove: y = x + 6

Statement	Reason
1. 4 (2x + y – 3) = 10x + 2y	GIVEN
2. 8x + 4y – 12 = 10x + 2y	
3. 8x + 4y = 10x + 2y + 12	
4. 4y = 2x + 2y +12	
5. 2y = 2x + 12	
6. y = x + 6	

Specific Week: Week 2
Target Competency: illustrates the need for an axiomatic structure of a mathematical system in general, and in Geometry in particular: (a) defined terms; (b) undefined terms; (c) postulates; and (d) theorems.
Note to the Teacher: This is a summative assessment.

Given: ∠a and ∠b are vertical angles.

Prove: ∠a ≅ ∠b

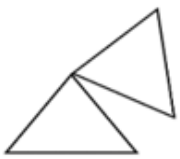


Statement	Reason
1. ∠a and ∠b are vertical angles	GIVEN
2.	
3.	
4.	
5.	
6.	

E. Analyze the way of transformation in each figure to show congruency. Distinguish if it is ROTATION, TRANSLATION or REFLECTION.

1. 

_____

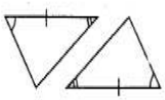
2. 

_____

3. 

_____

F**.** Tell which postulate will conclude that the following pairs of triangles are congruent.

1. 

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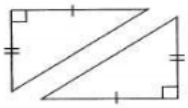
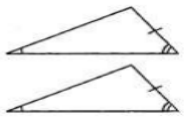
2. 

_____

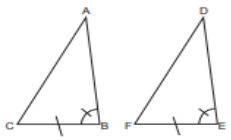
3. 

_____

4. 

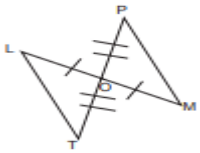
_____

G. Determine the additional corresponding parts needed to make the triangles congruent by using the specified congruence postulates.

1. 

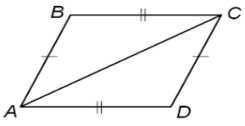
a. ASA _____

b. SAA _____

2. 

a. SAS _____

b. SSS _____

3. 

a. SSS _____

b. SAS _____

Specific Week: Week 2

Target Competency: illustrates the need for an axiomatic structure of a mathematical system in general, and in Geometry in particular: (a) defined terms; (b) undefined terms; (c) postulates; and (d) theorems; illustrate triangle congruence; and illustrate the SAS, ASA and SSS congruence postulates.

Note to the Teacher: This is a summative assessment.

H. Encircle the letter of your answer.

1. If $\Delta PGO \cong \Delta SRO$, what is the side corresponding to $\overline{GO}$?
   a. $\overline{PG}$ b. $\overline{RO}$ c. $\overline{SO}$ d. $\overline{SR}$

2. In ΔCAR, which angle is between $\overrightarrow{RC}$ and $\overrightarrow{RA}$?
   a. $\angle A$ b. $\angle C$ c. $\angle R$ d. none

3. Given in ΔRPO, $\overline{RP} = \overline{RO}$. If $m\angle P = 80$, find the measure of $\angle R$.
   a. 20 b. 80 c. 100 d. 180

4. If $\Delta FRY \cong \Delta DRY$, what congruent part shows reflexive property?
   a. $\overline{FY} \cong \overline{RY}$ b. $\overline{RY} \cong \overline{RY}$ c. $\overline{YR} \cong \overline{YD}$ d. $\overline{RF} \cong \overline{RD}$

5. Complete the statement by symmetric property: If $\overline{RE} \cong \overline{PO}$, then _____.
   a. $\overline{RE} \cong \overline{OP}$ b. $\overline{ER} \cong \overline{PO}$ c. $\overline{PO} \cong \overline{RE}$ d. $\overline{RE} \cong \overline{PO}$

6. What angle in ΔTAR is congruent to $\angle JYA$ if $\Delta JAY \cong \Delta ANE$ and $\Delta ANE \cong \Delta TAR$?
   a. $\angle TAR$ b. $\angle RAT$ c. $\angle TRA$ d. $\angle ATR$

7. What side in ΔQUE is congruent to $\overline{FA}$ if $\Delta FAY \cong \Delta BOL$ and $\Delta BOL \cong \Delta QUE$?
   a. $\overline{UE}$ b. $\overline{EU}$ c. $\overline{QE}$ d. $\overline{QU}$

8. If $\Delta ZAP \cong \Delta BOR$, which congruency statement is true?
   a. $\overline{ZP} \cong \overline{OR}$ b. $\angle APZ \cong \angle ROB$ c. $\angle PAZ \cong \angle ROB$ d. $\overline{ZA} \cong \overline{OR}$

9. If ΔABC and ΔZTE are congruent by SAS Postulate, what congruency statement is needed if $\overline{AB} \cong \overline{ZT}$ and $\overline{BC} \cong \overline{TE}$?
   a. $\angle B \cong \angle T$ b. $\angle A \cong \angle Z$ c. $\angle C \cong \angle E$ d. $\angle A \cong \angle T$

10. ΔABC and ΔCDA are congruent by what postulate or theorem?
   a. SAS b. ASA c. AAS d. SSS