Algebra 1/Geometry Proficiency Test

Initial Date: Thursday, May 6 from 3:30-5 p.m.

Makeup Date: Thursday, May 13 from 4-5:30 p.m.*

Eligibility and Test Information:

- This test is for incoming freshmen who wish to enroll in Algebra II or Honors Algebra II. Students whose transcript shows that they have completed a yearlong Algebra I course and a yearlong Geometry course or Integrated Math 2 are eligible to take this test.
- Calculators are not allowed for this proficiency test.
- The test will take one hour and fifteen minutes (additional time is scheduled for giving instructions and getting settled).

Algebra I topics include:

1. Algebra properties, such as distributive, associative, commutative.
2. Evaluating algebraic expressions and formulas.
3. Operations with rational numbers: add, subtract, multiply and divide.
4. Equation solving skills.
5. Inequality solving skills.
6. Ratio and proportion.
7. Percent and interest applications.
8. Problem solving skills and strategies.
9. Word problem applications.
10. Direct and inverse variation.
11. Skills with polynomials: add, subtract, multiply and divide.
12. Properties of exponents.
13. Scientific notation.
14. Factoring polynomials.
15. Skills with rational expressions: add, subtract, multiply and divide.
16. Solving factorable and rational equations.
17. Functions and relations.
18. Graphing linear equations and inequalities.
19. Forms of linear equations: point-slope, slope-intercept and standard.
20. Graphing and solving linear systems.
21. Operations with radical expressions, including simplifying.

22. Graphing quadratic equations.
23. Solving with the quadratic formula.

Geometry topics include:

1. **Lines and Angles**
    a. Points, Lines, Planes and Angles
    b. Reasoning and Proof
    c. Parallel and Perpendicular Lines

2. **Triangles**
    a. Congruent Triangles
    b. Relationships in Triangles
    c. Proportions and Similarity
    d. Right Triangles and Trigonometry

3. **Quadrilaterals and Circles**
    a. Quadrilaterals
    b. Transformations
    c. Circles

4. **Area and Volume**
    a. Areas of Polygons and Circles
    b. Surface Area
    c. Volume

**Please make every effort to test on one of these dates. If you are unable to, please contact Dr. Duwel, aduwel@presentationhs.org.*

Updated 3/29/2021

Geometry Proficiency Test
Practice Questions

1. Which best describes the statement, *If two planes intersect, then their intersection is a point*.

A. always true B. sometimes true C. never true D. cannot tell

2. If YX = 6, YZ = 8, XZ = 2, which point is between the other two?

A. X B. Y C. Z D. cannot tell

3. Choose the property that justifies the following statement.

If $x = 2$ *and* $x + y = 3$, *then* $2 + y = 3$.

A. Reflexive B. Symmetric C. Multiplication D. substitution

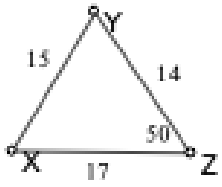
4. Refer to the figure. Possible measurements for $\angle x$ are

I. $\angle x = 65°$

II. $\angle x = 50°$

III. $\angle x = 45°$

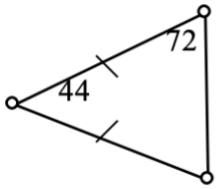
IV. $\angle x = 60°$



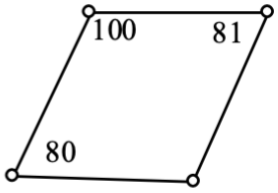
A. I only B. I, II, and IV C. III only D. II and IV

5. Which of the drawings contain information that is contradictory?

I



II



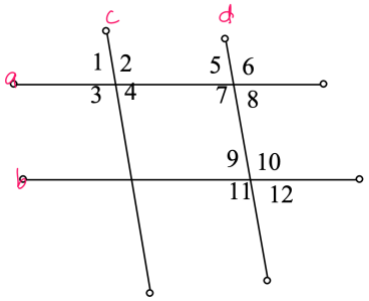
A. I only B. II only C. Both I and II D. Neither I nor II

6. **If the interior angle of a regular polygon is 162^o , how many sides does it have?**

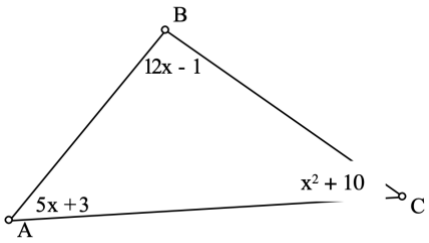
7. **Write an indirect proof.**
   Given: Scalene ΔABC; $CD$is a median
   Prove: $CD$is not an altitude

8. **Given two parallel lines where $\angle 1$ and $\angle 2$ are acute corresponding angles. $\angle 1 = 4x^2 - 54$ and $\angle 2 = 2x^2 - 3x$. Find $x$and $\angle 1$.**

9. **Given $a \| b$ and $c \| d$, prove $\angle 1 \cong \angle 12$**



10. **Find x. Which side is the shortest?**



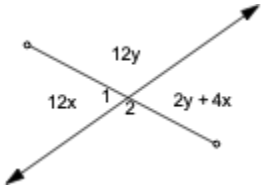
11. **Sketch the figure and find the given angles.**
    a. **The $\angle PQT$is a right $\angle$**
    b. **$T$is the interior of $\angle SQU$**
    c. **R is the interior of $\angle PQS$**
    d. $\angle PQU = 170°$

e. $\angle PQR = 70°$

f. $\angle RQS \cong \angle TQS$

Find $\angle RQS$ **and** $\angle TQU$

12. Find x **and** y



13. Use *always*, *sometimes*, or *never*.

a. Isosceles triangles are _____acute traingles.

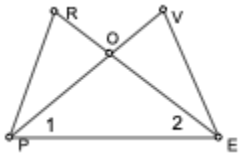
b. Lines that never intersect are _____parallel.

14. Given:

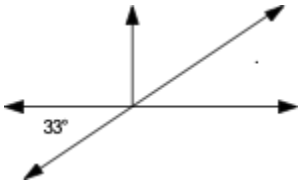
$\angle R \cong \angle V$

$RO \cong OV$

Prove: $\angle 1 \cong \angle 2$



15. Fill in all the missing angles.



16. Write True or False.

a. If a parallelogram is a square, then it is a rhombus._____

b. If a parallelogram is a rectangle, then it is a square._____

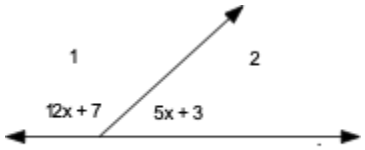
17. Given: TRAP is a trapezoid.

$\Delta\, TRP \cong \Delta\, PAT$

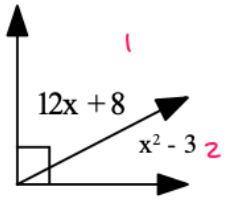
Prove: TRAP is isosceles.

18. Solve for x , $\angle 1$ *and* $\angle 2$

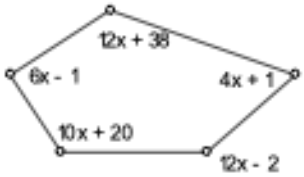
a.



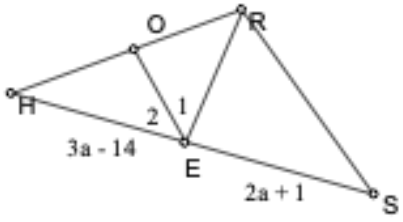
b.



19. Solve for x.



20. If RE is a median of $\Delta\, RSH$, $\angle REH = 7a - 15$. Find the value of a. Is RE an altitude? Explain.


O
R
R
2
1
3a - 14
E
2a + 1
S