RIVERVIEW HIGH SCHOOL - GEO: GEO-05-05-201 **Instructor:** ANGELA STEPHANIDES

POSSIBLE POINTS: 16 FACTOR: X1 TEST VALUE: 100

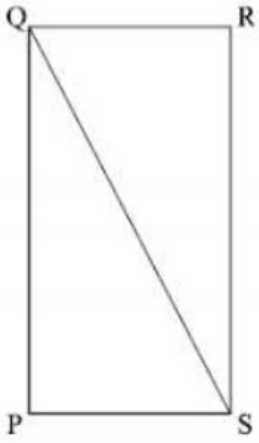
ANSWER KEY

Geometry Mock Exam (Part 1)

GRADING INSTRUCTIONS: Grade each question and tally the points to find the student's total points for the assessment. If the factor does not equal 1, multiply the total points by the factor to obtain the student's final score.

QUESTION 1: FILL IN THE BLANK DROPDOWN

Use the rectangle $PQRS$ to fill in the blanks.



- **In a rectangle the lengths of opposite sides are equal which means $\overline{QP} \cong$** [1] **.**
- **Triangles PQS and RSQ can be proven congruent by Hypotenuse-Leg because** [2] **is the hypotenuse for both triangles.**

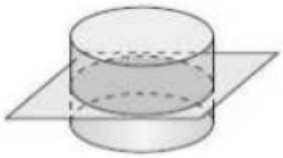
Correct answers:

1 RS 2 QS

1 possible pt.

QUESTION 2: MULTIPLE CHOICE

Describe the shape formed by the intersection of the plane and the solid.



A ◯ rectangle

B ◯ octagon

C ◯ square

D ✓ circle

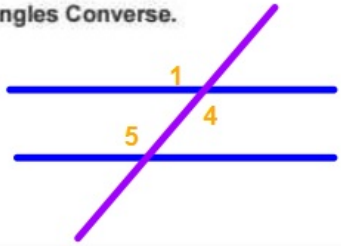
1 possible pt. / penalty score: 100%.

QUESTION 3: FILL IN THE BLANK DRAG AND DROP

Complete the two-column proof of the Alternate Interior Angles Converse.

Given: $\angle 4 \cong \angle 5$

Prove: $g \parallel h$



Statements	Reasons
1. $\angle 4 \cong \angle 5$	**1. Given**
2. $\angle 1 \cong \angle 4$	**2.** 1
3. $\angle 1 \cong \angle 5$	**3. Transitive Property of Congruence**
4. $g \parallel h$	**4.** 2

Correct answers:

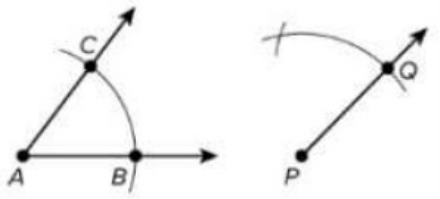
1 If two angles are vertical angles, then they are congruent.

2 If two lines are intersected by a transversal and corresponding angles are congruent, then the lines are parallel.

1 possible pt.

QUESTION 4: ORDERING

Consider $\angle A$ and $\overrightarrow{PQ}$.



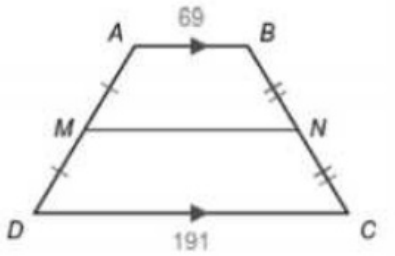
Drag the steps for constructing a copy of $\angle A$ with $\overrightarrow{PQ}$ as one side to arrange them in the correct order.

A	2	With the same compass width, draw an arc with center A through both sides of the angle.
B	6	Draw a line through P and the intersections of the arcs.
C	1	Draw an arc with the compass with center P passing through Q.
D	3	Label the intersection points of the arc and sides of the angle B and C.
E	5	Draw an arc with center Q through the first arc.
F	4	Set the compass width the distance BC.

1 possible pt.

QUESTION 5: MATH SHORT ANSWER

In the diagram, $\overline{MN}$ is the segment of a trapezoid $ABCD$. Find MN.

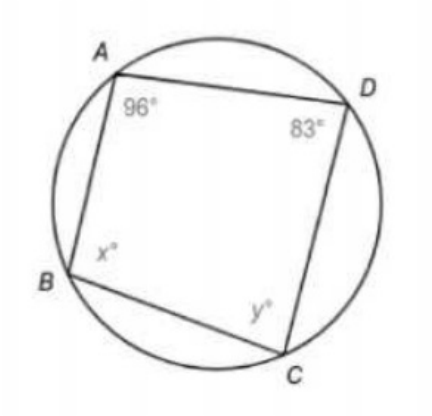


Midsegment Theorem
1/2 (b1 + b2)
1/2 (69 + 191)
1/2(260) = 130

1 possible pt.

QUESTION 6: FILL IN THE BLANK DROPDOWN

Given the inscribed polygon, find the value of both x° and y°.



Opposite Angles in an Inscribed Quadrilateral are Supplementary so they must add up to 180.

- $x =$ 1
- $y =$ 2

Correct answers:

1	2
97	84

1 possible pt.

QUESTION 7: MATH SHORT ANSWER

A dog park is being built near your school. The four vertices of the dog park can be represented on the coordinate plane at the following points:

$(0,0)$ $(6,0)$ $(6,4)$ $(3,4)$

If 1 unit on the coordinate plane equals 10 yards, what is the perimeter of the dog park in yards?

180 yd

*Graph find the distance of all the sides. Then multiply by 10!

1 possible pt.

QUESTION 8: MULTIPLE CHOICE

Equation of a Circle is $(x-h)^2 + (y-k)^2 = r^2$

h,k is the center & r is the radius

Which of the following is the standard equation of a circle with center $(-1,1)$ and radius 5?

A ◯ $(x-1)^2+(y+1)^2=25$

B ✓ $(x+1)^2+(y-1)^2=25$

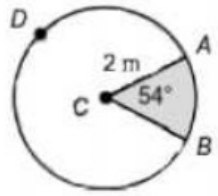
C ◯ $(x+1)^2+(y-1)^2=5$

D ◯ $(x-1)^2+(y+1)^2=5$

1 possible pt. / penalty score: 100%.

QUESTION 9: MATH SHORT ANSWER

Find the area of the shaded sector formed by $\angle ACB$



Give the exact answers in terms of π. Do not approximate the answer.

$A = \pi r^2$

$A = \frac{54}{360}\pi 2^2$

$A = \frac{54}{360}\pi(4)$

$A = \frac{216}{360}\pi$

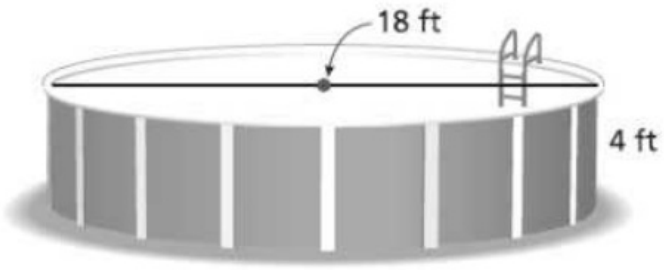
$A = \frac{3}{5}\pi$

1 possible pt.

QUESTION 10: MULTIPLE CHOICE

The inside of the cylindrical swimming pool shown must be covered with a vinyl liner. The liner must cover the side and bottom of the swimming pool.

The diameter of the pool is 18 feet and the height is 4 feet, as shown.



Surface Area $=2\pi rh+2\pi r^2$

*For this we don't need the area of the top of the pool! Just one of the area of a circle formula is needed so the formula we will use for this problem is

Whta is the closest to the minimum amount of vinyl needed for the liner?

$2\pi rh+\pi r^2$

- A ◯ 114 sq ft
- B ◯ 1075 sq ft
- C ☑ 481 sq ft
- D ◯ 736 sq ft

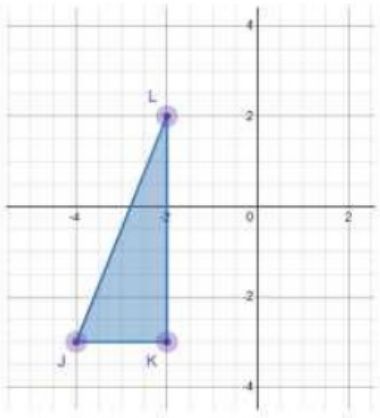
$2(3.14)(9)(4)+(3.14)(9)^2$

$226.08 + 3.14(81) = 480.42$

1 possible pt. / penalty score: 100%.

QUESTION 11: MULTIPLE CHOICE

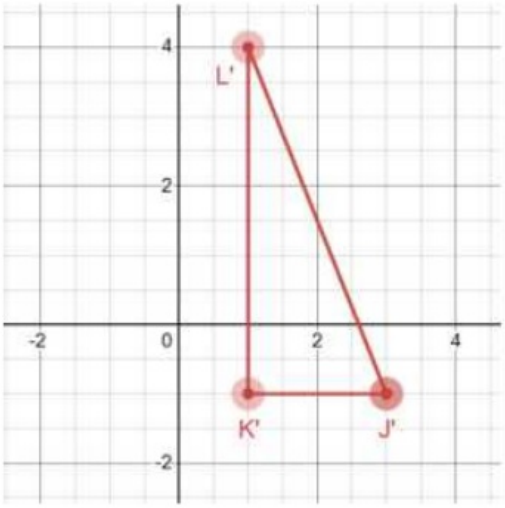
Given the preimage of $\triangle JKL$, identify the image after the following sequence of transformations:



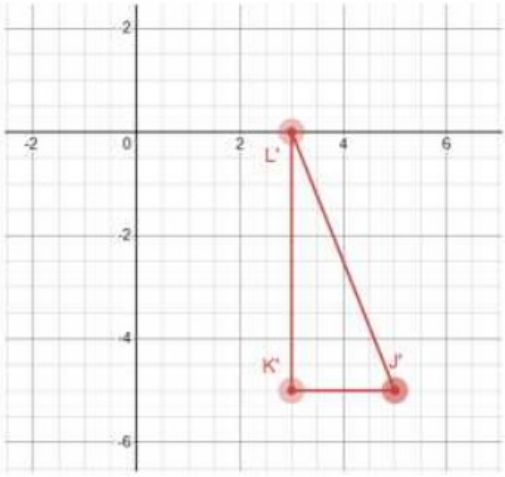
*graph this (flip over the y-axis) then complete the translation (x-1, y+2) so move left 1 and 2 up

- **A reflection in the $y-$axis, then**
- **A translation along $\langle -1, 2 \rangle$**

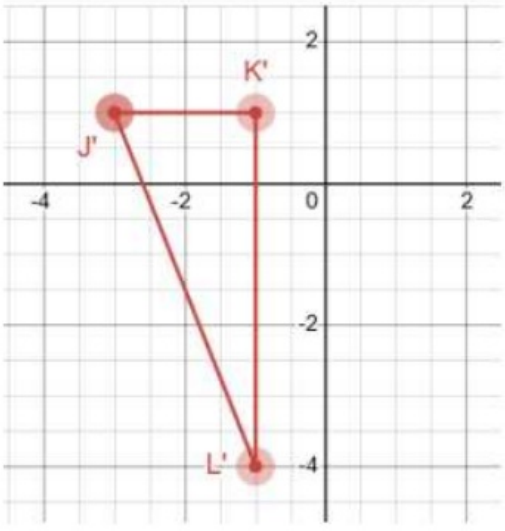
A ✓



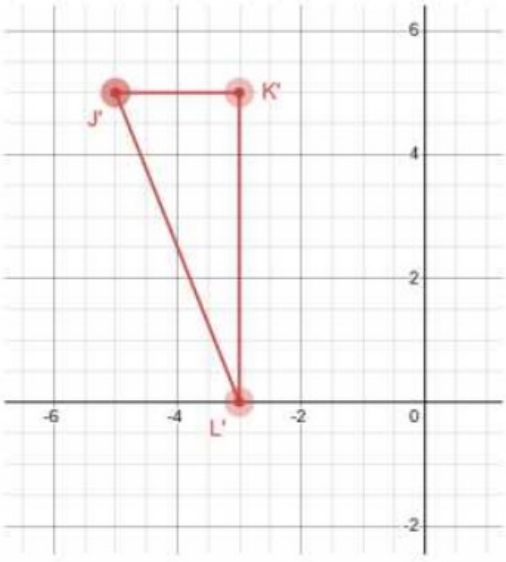
B ○



C ○



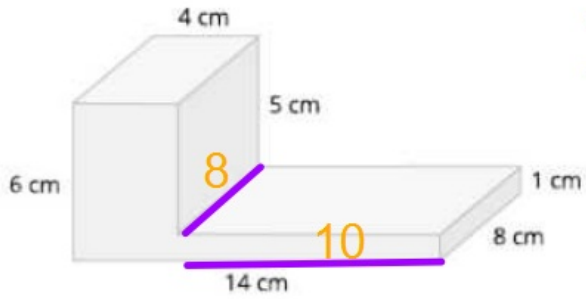
D ○



1 possible pt. / penalty score: 100%.

QUESTION 12: MATH SHORT ANSWER

A rectangular prism with 8-cm length, 4-cm length, and 5-cm height is placed on a rectangular prism with a 14-cm length, a 8-cm width, and a 1-cm height.



V=lwh
V= 10(8)(1) =80

V=lwh
V=4(8)(6) =192

What is the volume of the composite solid?

Add 80 + 192 = 272

1 possible pt.

QUESTION 13: MATCHING

Identify the converse, inverse, and contrapositive of the following conditional statement:

"If a hexagon is a regular polygon, then all sides are congruent." if P then Q

A	Converse	if Q then P
B	Inverse	Not P then Not Q
C	Contrapositive	Not Q then Not P

Correct answers:

1 If all sides of a hexagon is are congruent, then the hexagon is a regular polygon.

2 If a hexagon is not a regular polygon, then all sides are not congruent.

3 If all sides of a hexagon is are not congruent, then the hexagon is not a regular polygon.

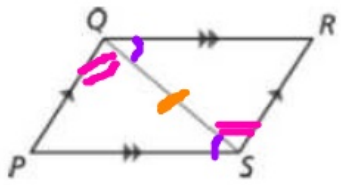
1 possible pt.

QUESTION 14: FILL IN THE BLANK DRAG AND DROP

Complete the two-column proof for proving opposite sides of a parallelogram are congruent.

Given: $PQRS$ **is a parallelogram.**

Prove: $\overline{PQ} \cong \overline{RS},\ \overline{QR} \cong \overline{SP}$



Statements	Reasons
1. $PQRS$ is a parallelogram	1. Given
2. Draw $\overline{QS}$.	2. Through any two points there is exactly one line.
3. $\overline{PQ} \parallel \overline{RS},\ \overline{QR} \parallel \overline{PS}$	3. Definition of a parallelogram
4. $\angle PQS \cong \angle RSQ,\ \angle PSQ \cong \angle RQS$	4. 1 [ ]
5. $\overline{QS} \cong \overline{SQ}$	5. Reflexive Property of Congruence
6. $\triangle PQS \cong \triangle RSQ$	6. 2 [ ]
7. $\overline{PQ} \cong \overline{RS},\ \overline{QR} \cong \overline{SP}$	7. 3 [ ]

Correct answers:

1 If two parallel lines are intersected by a transversal, then alternative interior angles are congruent.

2 ASA Congruence Theorem

3 Corresponding parts of congruent triangles are equal (CPCTC).

1 possible pt.

QUESTION 15: FILL IN THE BLANK DROPDOWN

Find the coordinates of the intersection of the diagonals of $\square ABCD$ with vertices:

- $A(0,2)\ B(8,2)\ C(4,-4)\ D(-4,-4)$

Graph to see!

The coordinates of the intersections of the diagonals are: (1 , 2)

Correct answers:

1 2 2 -1

1 possible pt.

QUESTION 16: MULTIPLE CHOICE

Your friend claims all of the following statements are valid. You disagree. Select all the statements that are not valid.

- A ☐ All squares are parallelograms
- B ☐ All squares are rectangles.
- C ☑ All circles are congruent.
- D ☑ All parallelograms are rectangles.
- E ☐ All parallelograms are trapezoids.
- F ☑ All trapezoids are isosceles.

1 possible pt. / penalty score: 100%.