

Euclidean Geometry

May 18 – May 22

Time Allotment: 40 minutes per day

Student Name: _____

Teacher Name: _____

Packet Overview

Date	Objective(s)	Page Number
Monday, May 18	Review Book I Vocab	2
Tuesday, May 19	Review Book I Propositions 1, 16	4
Wednesday, May 20	Review Book I Vocab & Propositions	6
Thursday, May 21	Review Book III Vocab	9
Friday, May 22	Minor Assessment	12

Additional Notes: Hello students!,

This week we will be reviewing some of the highlights of Euclid’s Elements.

Mr. Bernstein will have Guided Instruction at the following times

- 1st Period 10:00-10:50am Mondays & Wednesdays
- 5th Period 11:00- 11:50 am Tuesdays & Thursdays

Miss McCafferty will hold Guided Instruction at the following times:

- 1st Period 10:00-10:50 am Mondays & Wednesdays
- 3rd Period 1:00- 1:50 pm Mondays & Wednesdays
- 4th Period 10:00-10:50 am Tuesdays & Thursdays
- 6th Period 1:00- 1:50 pm Tuesdays & Thursdays

Love,

Miss McCafferty and Mr. Bernstein

The answer key to each lesson will be at the end of each lesson. The answer keys should only be used when checking work.

Academic Honesty

I certify that I completed this assignment independently in accordance with the GHNO Academy Honor Code.

Student signature:

I certify that my student completed this assignment independently in accordance with the GHNO Academy Honor Code.

Parent signature:

Monday, May 18

Geometry Unit: Review

Lesson 1: Review

Objective: Be able to do this by the end of this lesson.

1. Review Book I Vocab

Spend 10 mins reading over your Book I Definitions, Common Notions, and Postulates then answer the following questions without using your book or notes.

Once you have answered all the questions go back through your answers with your book and correct anything you got wrong.

Multiple Choice: Select the definition that is closest to Euclid's definition. Pick the BEST answer, and the answer that most accurately reflects Euclidian geometry.

1. What is a point according to Euclid?

- a. A location
- b. That which has no part
- c. That which makes up a line
- d. That which names a place

2. What a line according to Euclid?

- a. Lengthless Breadth
- b. A solution to an equation
- c. That which is made up of points
- d. Breadthless length

3. What is a surface according to Euclid?

- a. That which has length and breadth only
- b. That which lies evenly with the straight lines on itself
- c. That which is contained by a boundary or boundaries
- d. That which contains lines

4. What is an angle according to Euclid?

- a. A straight line that stands upon another straight line
- b. The inclination to one another of two lines in a plane which meet one another and do not lie in a straight line
- c. A figure formed by two rays that have the same endpoint (vertex)
- d. When a straight line is set up on another straight and makes the adjacent angles equal

For Questions 5 & 6 you may use your notes from last week.

5. If $A:B :: C:D$, what is the inverse of this proportion?

- a. $C : D :: A : B$
- b. $C : D :: B : A$
- c. $A : C :: B : D$
- d. $D : C :: B : A$

6. If $A:B :: C:D$, what is the alternate of this proportion?

- a. $C : D :: A : B$
- b. $C : D :: B : A$
- c. $A : C :: B : D$
- d. $D : C :: B : A$

Answer Key:

- 1. B
- 2. D
- 3. A
- 4. B
- 5. D
- 6. C

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Tuesday, May 19

Geometry Unit: Review

Lesson 2: Review

Objective: Be able to do this by the end of this lesson.

1. Review Book I Propositions

Write out the following propositions

Book I, Proposition 1

Enunciation:

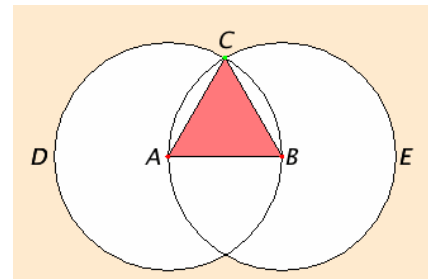
To Construct an Equilateral Triangle

Setting out:

Specification:

Construction/Proof:

Labeled Diagram:



Justifications:

Conclusion:

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Book I, Proposition 16

Enunciation:

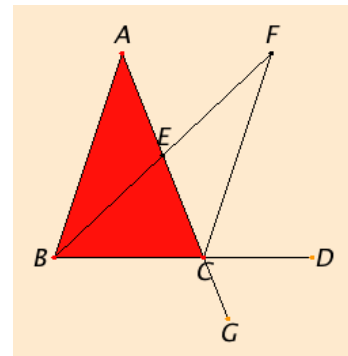
In any triangle, if one of the sides is produced, then the exterior angle is greater than either of the interior and opposite angles.

Setting out:

Specification:

Construction/Proof:

Labeled Diagram:



Justifications:

Conclusion

Wednesday, May 20

Geometry Unit: Review

Lesson 3: Review

Objective: Be able to do this by the end of this lesson.

1. Review Book I Definition & Propositions

Fill in the blanks for these definitions, and conclusions of propositions from Euclid's

Elements

1. A straight line is a line which _____ the points on itself. (Book I)
 - a. Is made up of
 - b. Lies next to
 - c. Lies evenly with
 - d. Has breadthless length and lies with
2. The extremities of lines are _____ (Book I)
 - a. Rays
 - b. Segments
 - c. Vertices
 - d. Points
3. In any parallelogrammic area, one of the parallelograms about its diameter together with the two complements is called a _____. (Book II)
 - a. Gnomon
 - b. Gnome
 - c. Rhomboid
 - d. Trapezia
4. Circles are said to _____ one another which, meeting one another, do not cut one another. (Book I)
 - a. Enclose
 - b. Touch
 - c. Be next to
 - d. Encompass

5. A _____ of a circle is the figure contained by a straight line and a circumference of a circle. (Book I)
- Semicircle
 - Sector
 - Similar segment
 - Segment
6. Select and bubble in all the acronyms (abbreviations) below that can be used to show that all the corresponding sides and angles of two triangles are equal. (Book I)
- SSA
 - SS
 - AAS
 - ASA
7. When two straight lines intersect, the equal angles opposite one another are called _____ (Book I)
- Vertical
 - Perpendicular
 - Right
 - adjacent
8. In a triangle, the greater side _____ the _____ angle. (Book I)
- Lies beside the lesser
 - Subtends the greater
 - Stretches underneath the lesser
 - Bisects the greater
9. In all triangles, the sum of the interior angles is equal to _____. (Book I)
- The interior and opposite angles
 - The exterior angle
 - 4 right angles
 - 2 right angles

10. In all triangles, the _____ angle is equal to the sum of the two _____, opposite angles. (Book I)
- a. Interior..... Right and
 - b. Interior..... Adjacent and
 - c. Exterior..... Interior and
 - d. Exterior..... Adjacent and
11. The opposite sides of parallelograms are both _____ and _____.(Book I)
- a. Equal and opposite
 - b. Equal and propotional
 - c. Equal and similar
 - d. Equal and parallel
12. Triangles that are in the same parallels and on _____ are equal. (Book I)
- a. Proportional bases
 - b. Opposite bases
 - c. Equal bases
 - d. Unequal bases

Answer Key:

- 1. C
- 2. D
- 3. A
- 4. B
- 5. A
- 6. CD
- 7. A
- 8. B
- 9. D
- 10. C
- 11. D
- 12. C

Thursday, May 21

Geometry Unit: Review

Lesson 4: Review

Objective: Be able to do this by the end of this lesson.

1. Review Books I, III, & IV Definitions & Propositions

Use your copy of Euclid's Elements to choose the best answer for the following questions

1. Euclid constructs the regular quindecagon (15 sided figure) in a circle using two figures, the regular _____ and the regular _____. (Pick two and bubble in both answers) (Book IV)

- a. Triangle
- b. Square
- c. Pentagon
- d. Hexagon

2. Equiangular triangles necessarily also have their

_____. (Hint: Isosceles)

- a. Exterior angles bisected
- b. Vertices equal
- c. Sides equal
- d. Adjacent angles equal

3. When a diameter bisects another line not through the center in a circle, it is

_____ to this line.(Book III)

- a. Equal
- b. Bisecting
- c. Perpendicular
- d. Parallel

4. If two circles either touch or cut one another, they cannot have the same

_____. (Book III)

- a. Tangent
- b. Diameter
- c. Angle at the center
- d. Center

5. Whether two circles touch one another internally or externally, the straight line through their centers will fall _____. (Book III)
- a. On their circumferences
 - b. On the point of contact
 - c. Parallel to the diameter
 - d. Perpendicular to the right angle
6. In a circle, the line drawn from the center to the point of tangency is always _____ to the tangent. (Book III)
- a. Parallel
 - b. Equal
 - c. Adjacent
 - d. Perpendicular
7. In the circle, the longest line is the _____, and lines more remote from the center are _____ lines nearer the center. (Book III)
- a. Radius..... longer than
 - b. Diameter..... Longer than
 - c. Radius..... shorter than
 - d. Diameter..... shorter than
8. Angles in the same _____ of a circle are _____ (Book III)
- a. Center..... Equal
 - b. Sector..... Equal
 - c. Segment..... Equal
 - d. Tangent Equal
9. In a circle, the angle at the center is always twice the angle _____ when the angles stand on the same part of the circumference. (Book III)
- a. At the Center
 - b. At the Sector
 - c. At the Circumference
 - d. At the Tangent

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Answer key for Thursday, May 21

1. AC
2. C
3. C
4. D
5. B
6. D
7. D
8. C
9. C

Friday, May 22

Geometry Unit: Review

Lesson 5: Review

Objective: Be able to do this by the end of this lesson.

1. Minor Assessment

Use your book to help you write out propositions I. 32 & I. 47

Book I, Proposition 32

Enunciation:

In any triangle, if one of the sides is produced, then the exterior angle equals the sum of the two interior and opposite angles, and the sum of the three interior angles of the triangle equals two right angles.

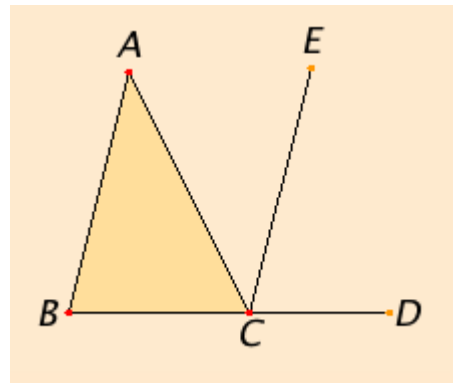
Setting out:

Specification:

Construction/Proof:

Conclusion:

Labeled Diagram:



Justifications:

Book I, Proposition 47

Enunciation:

In right-angled triangles the square on the side opposite the right angle equals the sum of the squares on the sides containing the right angle.

Diagram:

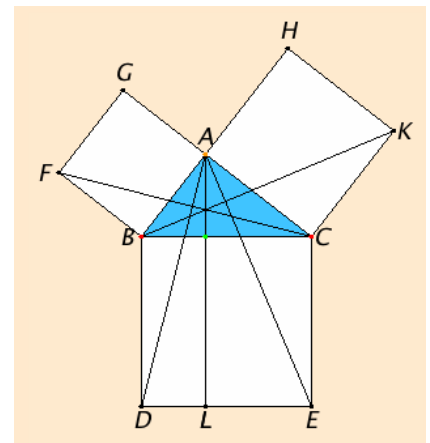
Setting out:

Specification:

Construction/Proof:

Justifications:

Labeled



Conclusion