Similarity Unit Daily Lessons

Pre-AP Geometry 2019

December 4-5, Tuesday – Wednesday, 2018

Objective: I can discover and apply definition and properties of dilation using software or a coordinate graph.

* Test make-up issues
* Geogebra – how does it work? Try some things. Use geogebra to construct some of our points of concurrency and learn to use the software (plus review for final)
* Geogebra class investigation of dilation with software. Observations about: segment lengths, angle measures, what happens when dilation center moves, parallel and collinear segments, the rays connecting dilation center point to corresponding vertices (and the lengths marked off on them).
* Use Geogebra to “prove” that all circles are dilations of each other (are similar). Use the radius segment to move a small circle on top of a large circle and enlarge it until the two are the same.
* Do Example B on p 371 on a small piece of graph paper. Label well and answer any question asked. Use this to glue into Geometric Truth along with the definition for dilation from the bottom of p 371. Read the page carefully.
* Write up Conjecture about circles from p 372, using sketch like our Geogebra activity.
* Do p 372-3: 1,3. Finish for homework if not finished in class.
* View tests.
* In some classes, take a grade on HW #12 – 4 pts.

Final Review information coming soon!

Thursday-Friday, December 6-7, 2018

I can discover and apply properties and definition of similarity (dilation).

* Preview final and review assignments. How will grading work?
* Answers to pp 372-3: 1,3 and conjecture and definition. Glue everything into appropriate place in notebook.
* Demonstrate with Geogebra – dilation of a point and a segment with and without coordinates. Try on graph paper (short activity). May glue into in-class section.
* In some classes: dilate segments on copy paper. Dilate points on copy paper. The idea of a ray from the center of dilation to the point, endpoint, or vertex to be dilated.
* Investigation 3 on p 376. Also create F”O”U”R” with a scale factor of .5
* Refer to Investigations 1 & 2 and what it means to be similar (polygons are similar if their corresponding angles are congruent and corresponding sides are proportions). Figures are similar of one can be mapped onto the other by and rigid motion and/or a dilation.
* 0B, 4th, and 6th – p 374: define “similar polygons” with sketches of CORN and PEAS and all info from middle of p 377. Write up C-57 from p 375 – If one figure is a dilation of another, then the figures are similar.
* All classes: get Review Topic List to start studying for final. 4th, 6th, 0B – get assignment due next time we meet!

Monday-Tuesday, December 11-12, 2018

I can understand and document the connection between dilation and similarity. I can dilate and find center of dilation with and without coordinate grid.

* Investigation 2 on p 375. Use the scale factor given to your group. Work carefully and label well.
* Share different scale factors. Write up definition of similar polygons from bottom of p 374, using sketches about CORN ~ PEAS from the middle of p 377. Write up C-57 on p 375, using sketch on board: If a polygon is a dilation of another, then the two polygons are similar.
* Make-up issues for test, etc.
* Define similarity in terms of transformations: geometric figures are similar if a sequence of rigid transformations and/or dilations can map one directly onto another.
* PARCC questions on screen.
* Demonstration of dilation without coordinates using rays on Geogebra.
* Dilation Performance Task (turn in at the end of class).
* Pass out Final Review #1. Explain about 10 pt grade over Geometric Truth. Assignment due next block. (all but 0B).

Same block for 0B, 6th, and 4th:

I can apply skills and concepts related to points of concurrency, rigid transformations, and triangle congruence.

* What should the final review assignment for 10 pts look like? Includes both worksheets, textbook assigned problems, all work done in class for two review blocks. Do you have all of your handouts, including Study Guide? What should be in Geometric Truth when it is checked for 10 pts next time?
* Transformation Test (blank) on desk. Rework on your paper: 1-4,7-8,10-14,19. Glue graph paper work onto your page.
* Check 1st review to be sure it has been started.
* Go over review assignment (all but 0B) and Transformation Test questions.
* Pass out new review handout. Also do: pp 196-7:8-18 and p 365:42. Turn to Build Your Own Notes on Points of Concurrency Side. Do cheer. Work to build a set of notes to help you study for multiple matching on points of concurrency.
* Collect Transformation Test. Pass out your own Congruence Test. Rework, make sure you understand, copy the problem if you want: 10-13, 17-18 (what triangles are congruent by what shortcut or CBD), 20-21 (a proof on final), 14-16 – multiple choice practice. Ask questions.
* Collect Congruence Test.

Study session Friday morning at 8 am for final.

January 7-8, Mon-Tues, 2019

I can apply definition of similar polygons to write and solve proportions and determine if polygons are similar.

* Intro: test on Jan 22-23, 75 pts over similarity; what to throw away, what to keep, recommendations for next year, math contest info
* Warm-up: old textbook: pp 560-562. Read p 560. In Geometric Truth, define and give example for “ratio” and “proportion”. In class section: do pp 561-2: 1-18. On 4-18, write proportions, show cross-multiplication.
* Pass out finals, self-check and question.
* Pass out “Self Evaluation” and “Recipes for Success”. (get grade from last semester).
* Collect finals and self-evaluation; keep the hints for success.
* Go over answers to warm-up.
* Two definitions (go over) similar polygons, similar figures. (corresponding angles congruent, corresponding sides proportional). Use the definition as a filter to determine if two figures are similar. Use the fact that two polygons are similar to find missing sides and angles. Practice.
* HW #1: pp 378-80: 1-19. (Use graph paper when needed.)

Test: January 22-23, Quiz: Jan 15-16

January 9-10, Wednesday-Thursday, 2019

I can apply definition of similar polygons to find missing info, determine if similar, and discovery similarity shortcuts and apply them.

* Info about ACT, contests
* Warm-up: redo on board of problem #17 from HW, with guidance.
* Warm-up: patty paper investigation – AA Similarity Shortcut
* Take a grade on HW #1 – 4 pts
* Share answers to warm-up and homework (details on HW). Suggestions for re-dos.
* Geogebra Demonstration on screen: SAS similarity shortcut (3,4 with right angle, 6,8 with right angle between makes similar triangles). Sides are parallel, so dilated, so similar.
* Demonstration on screen with colored sticks: SSS similarity shortcut works. The sticks were 10,12 & 14 cm, 5,6 & 7 cm (half as long). No angles copied, yet corresponding angles are congruent.
* Kuta worksheet practice 6 problems: are the triangles similar? If not, why not? If so, which shortcut and name the triangles.
* HW #2: pp 384-5: 1-16, omit 10-11.

Quiz 7.1-3 – Tues-Wed next week (Jan 15-16) about 20 pts.

Test – Similarity and Dilation Unit – Tues- Wed, January 22-23, about 75 pts.

January 11-14, Fri-Mon, 2019

I can dilate with technology, with and without coordinate grid. I can find missing information in similar figures, including real world application (indirect measurement).

* Warm-up: (on index card: Are all circles similar? Squares? Rectangles? Isosceles triangles? Equilateral triangles? Isosceles right triangles? Why or why not?
* Dilation Activity with Geogebra. Connect to how to dilate on paper without coordinate grid.
* Take a grade on HW #2 – 4 pts
* Go over HW #2 in detail. Stop on problem 7 and learn about relationships of triangles when you put an altitude at the right angle.
* Quiz topics
* Shadow problems? Mirror problem demonstration.
* Corresponding parts of similar triangles are proportional.
* What goes in C-59-61 and what should I sketch?
* HW #3: pp 388-90:1-7,10-11, p 374:1-6. Write proportions and solve. Write up C-59 to 61 using notes from class or from website.
* QUIZ TOPICS ARE ON THE DAILY BLOG!

Quiz Tues-Wed, Jan 15-16, 20 pts.

Unit Test Similarity, Part A, Jan 22-23, Part B is Jan 24-25.

January 15-16, 2019, Tues-Wed

I can demonstrate mastery over the basics of similarity and dilation. I can discover and apply parallel proportionality.

* Warm-up: dilation activity on paper without coordinate plane
* Go over HW #3 in detail. Use problem 1 to show how to sketch and label. Use #3 to show how to do this on the ACT. Use #7, 10 to talk about preview of new content and AA similarity. Questions.
* Preview of new content – 7.6 – parallel proportionality. From new book, read p 396. Do investigation 1 on p 397. Determine that the converse is also true and that it works for more than 2 segments.
* Show how problems 1-3 on homework cannot use new truth.
* Quiz 7.0-3 – 20 pts
* HW #4 – p 395:13,18, p 400: 1-10, 19-20. Write proportions and solve if applicable.

Test Similarity and Dilation: Part A (24 pts) on Jan 22-23, Part b – 50 pts on Jan 24-25.

January 17-18, 2019, Thurs-Fri

I can justify similarity of triangles in a paragraph. I can dilate/interpret in coordinate plane. I can find the altitude of a right triangle based on similarity (geometric mean).

* Warm-up: are these pairs of triangles similar? Justify in a short paragraph.
* Take a grade on HW #4 – 4 pts
* Share warm-up answers/discuss.
* Altitude in a right triangle: discover how to find it based on similar triangles formed by altitude in a right triangle. Learn about geometric mean. Try with a few numbers.
* Share HW answers (show problem 18 from online textbook if time). Answer questions in detail to understand when you can use the parallel proportionality from pp 398-9.
* Dilation worksheet on graph paper (3 problems)
* Self-check.
* In class: work on back of review sheet on desk. Will finish in class.
* HW #5 – textbook review: pp 404-6:1-3,6-7,8 (on 8 only give center and scale factor), 9-18, 20, 22, 26-27.
* Some classes: view quizzes.

Test next block: part A at the end of class: all T/F and Multiple Choice, 24 pts.

January 22-23, Tues-Wed, 2019

I can apply skills and definitions related to similarity and dilation. I can demonstrate mastery over basics of similarity and dilation (especially Geometric Truth).

* Warm-up on board: write true proportions based on names of similar figures. Name corresponding angles, define similar polygons.
* Review worksheet (continue from last block) – 11-20, 23-24, 1-4 on front, 6, 8.
* Take a grade on HW #5 – 5 pts
* Self-check HW #5 from answers and explanations printed.
* Answers to review worksheet. Questions.
* Dilations: corresponding sides are either collinear or parallel. Go over part of textbook review, hitting important points.
* Similarity Test Part A – 24 pts
* HW – study for part B