Similarity Unit Daily Lessons

Pre-AP Geometry 2020

December 6-9, Friday-Monday, 2019

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 rigid transformations 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.

Final Review information coming soon!

Dec 10-11, Tues-Wed, 2019

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.
* Investigation 2 on p 374. Write up C-57-58 from your results.
* Investigation 3 on p 376.
* Refer to Investigations 2 & 3 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. Write up definitions.
* While doing Inv #2 – write up C-57 and 58 from the same page. Dilated figures are similar. All circles are similar.
* All classes: get Review Topic List to start studying for final. get review assignment due next time we meet!
* Return Congruence Tests to study mistakes.

Thurs-Fri, December 12-13, 2019

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

* In old textbook: p 239:13, p 245:11. Look at final review study guide… how to get ready for the test. Make sure you use words to think about angles when you work these problems.
* 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?
* 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. Be sure to do book problems listed in upper right hand corner. 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. Rework problems from congruence test (not done in all classes)

Mon-Tues, December 16-17, 2019

I can apply skills and concepts related to reasoning, basic geometric terms, angle pairs, triangle segments, and points of concurrency.

* Problems from Reasoning Quiz and Test
* Take a grade on review if finished – 10 pts (otherwise bring to final)
* Finish up work on transformation test
* Answers to review and both warm-ups
* Rework most parts of Building Blocks and Angle Pairs Test
* Check answers
* How to study for final
* No notecard allowed on final

Study Session Thursday morning at 8 am.

January 9-10, Thurs-Fri, 2020

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

* Intro: information about finals, what to throw away, what to keep, recommendations for next year, math contest info
* Warm-up: Two dilated triangles are given, find the center of dilation and the scale factor
* 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: 1-12, 14, 15, 17. On 4-17, write proportions, show cross-multiplication.
* Pass out finals, self-check and question. (only in 0B)
* Pass out “Self Evaluation” and “Recipes for Success”. (get grade from last semester). (only in 0B)
* 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: 1-6, 8-16, 19. (Use graph paper when needed.)

Test: January 22-23, Quiz: Jan 17, 21

January 13-14, Mon-Tues, 2020

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

* Info about ACT, contests (in some classes). 1st period – return finals, self-evaluation.
* Warm-up: write up in geometric truth: definitions for similar figures, ratio, and proportion
* Take a grade on HW #1 – 4 pts
* Share answers to warm-up and homework (details on HW). Suggestions for re-dos.
* Investigation 7.2 – Triangle Similarity Shortcuts – AA on patty paper.
* 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 9, 12 and 15 cm, 4.5, 6, and 7.5 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., p 380: 17-18.

Quiz 7.1-3 – Fri-Tues next week (Jan 17-21) about 20 pts.

Test – Similarity and Dilation Unit – January 24-29 (in 2 parts), about 75 pts.

January 15-16, Wed-Thurs, 2020

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: 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.
* 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 Fri-Tues, Jan 17-21

Unit Test Similarity, Part A, Jan 24-27, Part B is Jan 28-29.

January 17-21, Fri-Tues, 2020

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

* Warm-up: dilation activity – PARCC released items (coordinate grid)
* 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 and #10 to intro today’s lesson compared to AA similarity. Questions.
* Preview of new content 7.6 – parallel proportionality. Old textbook: read p 603 and 605 proof. Understand that the proof shows that the two sides of the triangle cut by a parallel line are divided into proportional segments that have a consistent ratio (just not the similarity ratio of the triangles). (What is a similarity ratio? What is a similarity statement?)
* Show how problem 1-3 on homework cannot use the new conjecture. Show pages where it shows that the converse works (If the segments are proportional, then the cut line is parallel to the third side of the triangle.) Show that it also works for multiple parallel lines in the triangle.
* Quiz 7.0-3 – 20 pts
* HW #4: p 395: 13, 17, pp 400-1: 1-6, 8-9, 19-20.

Test Fri-Mon, Jan 24-27, Similarity Part A (MC and T/F), Tues-Wed, Jan 28-29, Part B… show work and do dilations.

January 22-23, Wed-Thurs, 2020

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.
* 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.
* Pass out topic list.
* Some classes: view quizzes.

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

January 24 – 27, Fri-Mon, 2020

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

January 28-29, Tues-Wed, 2020

I can demonstrate mastery over similarity and dilation. I can apply Pythagorean Theorem to find missing sides of right triangles or to determine if a triangle is a right triangle.

* Warm-up: Are the triangles similar? Explain in detail. Apply PT to find missing sides of
* Take a grade on HW #5 – Similarity Review – 6 pts
* Go over warm-up. Go over review/ questions.
* Pythagorean Theorem: It’s algebra – write equation, show work. What is the converse? So if I give you 3 sides of a triangle, can you use PT to tell me if it is a right triangle? Obtuse? Acute? If 3 whole numbers work, then it’s a triple, and it’s important.
* HW #6: p 502: 1-10, 13-18.
* Similarity Unit Test – Part B – 45 pts