Welcome to GeoGebra + GoFormative for Problem Solving, Problem Posing, and Assessment

While you wait …

- Go to geogebra.org and download a copy of GeoGebra for your laptop or tablet.
- Go to goformative.com and click on **Join Code**
- Use the code **AEYRQS** and answer the 5 questions provided.

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GeoGebra + GoFormative for Problem Solving, Problem Posing, and Assessment

Roberto Soto, rcsoto@fullerton.edu
Armando Martinez-Cruz, amartinez-cruz@fullerton.edu
CSU Fullerton

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Objectives

- Use GoFormative and GeoGebra
- Use technology appropriately.
- Share materials for the classroom.
- Discuss how we can infuse Standards for Mathematical Practice in our courses.

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CCSS for Mathematics:

Standards for Mathematical Practice

1. *Making sense of problems and persevere in solving them;*
2. *Reasoning abstractly and quantitatively;*
3. *Constructing viable arguments and critiquing the reasoning of others;*
4. *Modeling with mathematics;*
5. *Using appropriate tools strategically;*
6. *Attending to precision;*
7. *Looking for and making use of structure; and*
8. *Looking for and expressing regularity in repeated reasoning.*

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GeoGebra Basics

- Today we will use GeoGebra geometric features to construct:
  - Points
  - Line segments
  - Midpoints
  - Polygons
  - Equilateral triangles
  - Squares

How can we prove that a quadrilateral is a parallelogram?

List all of the ways that you remember.

GoFormative Code: GLTBZZ

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Problem 1

- Construct any quadrilateral.
- Next, construct the midpoints of each side.
- Now, connect the four midpoints (clockwise or counterclockwise) to create a new quadrilateral.
- What can we say about this second quadrilateral?

We will discuss how to use GoFormative so that students can share their work in the next problem.

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Prep for Problem 2

- Please go to **bit.ly/2r8BCkn**
- Click on the folder labelled **GeoGebra Files,** and
- Open the file named **Problem 2 Parallelograms and Equilateral Triangles**.

Problem 2

1. Construct any parallelogram
2. Next, construct an equilater
   one of the sides of the para
3. Now, construct an equilateral t
   adjacent side to step 2 above.
4. Then construct a triangle that connects the two vertices of the equilateral triangle not touching the parallelogram to the vertex on the parallelogram that
5. What do you notice? How do you prove it?

Share your ideas.
Join Code: AZCLWQ

Problem is from *Challenging Problems in Geometry* by A. Posamentier and C. Salkind

Problem 3

Share your ideas.
Join Code: TDKCXL

1. [illegible]parallelogram.
2. Ne[illegible]ct a square on each of the sides of the parallelogram.
3. Now, find the center of each square and connect all centers of the squares.
4. What do you notice? How do you prove it?

Problem is from *Challenging Problems in Geometry* by A. Posamentier and C. Salkind

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Questions

All handouts/materials can be found at bit.ly/2r8BCkn

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THANK YOU!!!

Please feel free to contact us with any other questions at:

- *Roberto Soto, rcsoto@fullerton.edu*
- *Armando Martinez-Cruz, amartinez-cruz@fullerton.edu*

If you are interested in materials from our previous sessions on GeoGebra, Complex Numbers, and their geometric interpretation you can also find them in our bit.ly

Our paper can be found in the North American GeoGebra Journal at https://geogebrajournal.miamioh.edu/index.php/ggbj/index or at https://bit.ly/2r6YnnY

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