Area Formula Investigation

by – J. Marvel

Activity overview

It's easy to just plug in the numbers without thinking, right? Even better, just use the calculator to find the area for you! Well, not today! Students will construct altitude and calculate the area of 5 geometric shapes using the measurement tools.

Concepts

Area and perimeter of geometric shapes

Teacher preparation

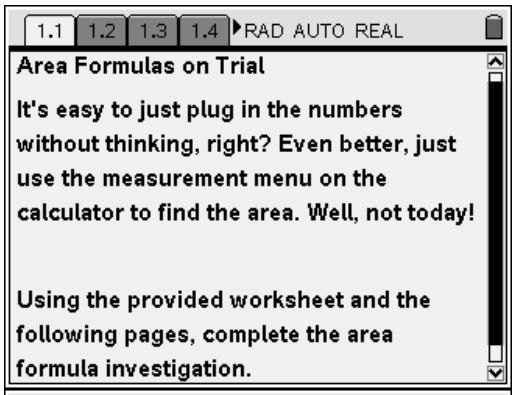
Students should have access to the correct area formulas for a triangle, parallelogram, trapezoid, pentagon and hexagon.

TI-Nspire Applications

Area Formulas.tns

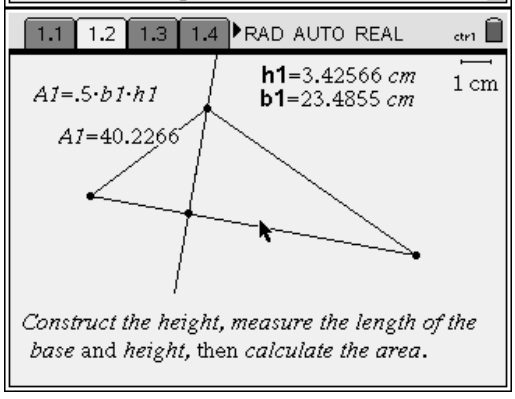
Step-by-step directions

Open the Area Formulas.tns file and read introduction



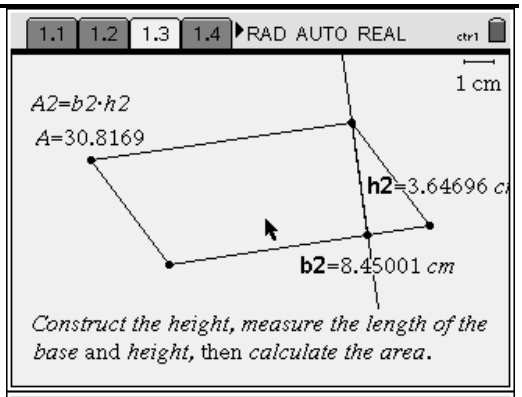
On page 2, students should construct the height using the construction menu (1: Perpendicular). Students will need to measure the length of both the height and base. Values for each should be labeled and stored for future calculations(just make sure to name them all differently!).

Students can also insert a calculations page for the area and use the stored values found to find area.

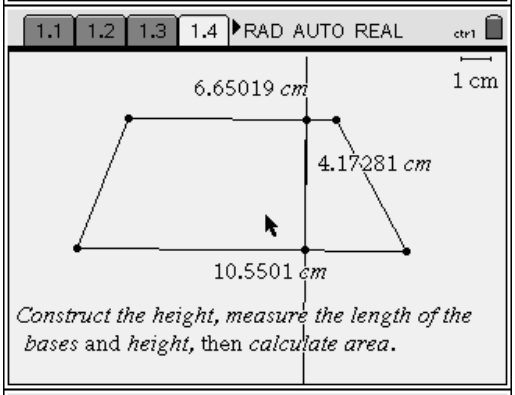


Students continue to construct and calculate the areas for each of the 5 geometric shapes.

Area of parallelogram: base * height

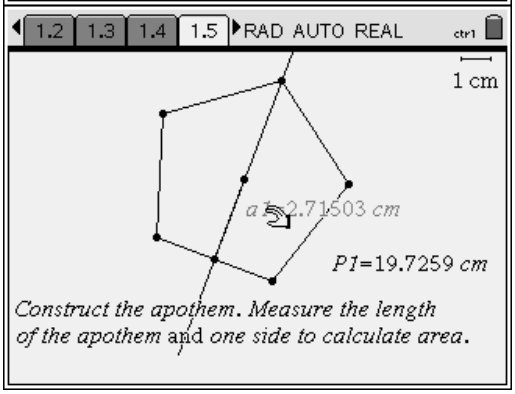


Area of a trapezoid:
½ * height (base 1 + base 2)

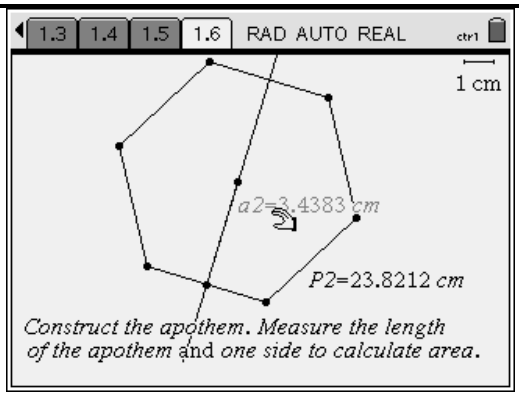


Area of a pentagon: ½ * apothem * perimeter

(Side note: The apothem is the distance from the center to a side of the polygon.)



Area of a hexagon: ½ * apothem * perimeter



Activity Extenstions

Students can manipulate the polygon and see how the dimensions and area change.

Student TI-Nspire Document

Area Formulas.tns