TI-*nspire*™

Composite Rectangular Figures

by – Ellery Palma

Activity overview

Students will investigate how to find the perimeter and area of a composite rectangular figure by finding the lengths of the unknown sides. Students will understand the definition of perimeter by adding up the lengths of all the sides. In order to find the total are students must break up the large figure into smaller quadrilaterals; then find the sum of these quadrilaterals (l·w) in order to find the total area of the figure ABCDEF.

Concepts

Area, Perimeter, Sum, Quadrilaterals, Polygons

Teacher preparation

I would recommend that the activity is completed before presenting the lesson to the class in order to calculate the lengths of the unknown sides.
Copies of the Summary/Extension packet- 1 for each student.

Summary Extension_CompRectFig.doc

Classroom management tips

The students can sit in pairs or groups of four so that they can ask questions easily with completing the investigation; however each student can use their own calculator in order to complete the task.
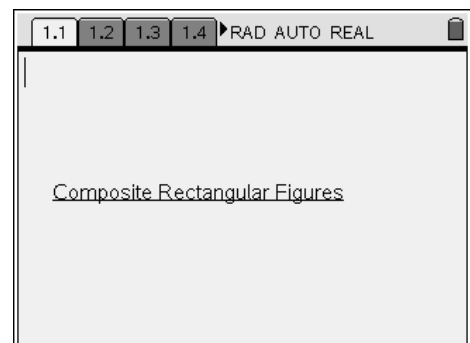
The summary/extension packet can be assigned and completed for homework.

TI-Nspire Applications

Composite Rect Fig.tns

Step-by-step directions

(1.1)   Title Page

| 1.1 | 1.2 | 1.3 | 1.4 | ▶RAD AUTO REAL | ▯ |

Definition:

　　A Composite Rectangular Figure is a polygon that is made up of smaller quadrilaterals (rectangles).

(1.2): Definition of a composite Rectangular figure – Read aloud to the entire class.

| 1.1 | 1.2 | 1.3 | 1.4 | ▶RAD AUTO REAL | ▯ |

With this in mind; how would you go about finding the area and perimeter of a composite rectangular figure when some of the lengths of the sides are unknown?

How can you find the measures of the unknown lengths in relation to the entire "whole" polygon?

(1.3): Essential Questions: Read to the entire class.

| 1.1 | 1.2 | 1.3 | 1.4 | ▶RAD AUTO REAL | ▯ |

Investigation: PERIMETER

(1.4) Introduce to the class that their first investigation is Perimeter.

| 1.2 | 1.3 | 1.4 | 1.5 | ▶RAD AUTO REAL | ▯ |

Question

Given the following composite rectangular figure on the next page. Explain your reasoning as how you can find the lengths of the sides that are unknown.

Answer ⌄

(1.5): Students need to explain how they can find the length of the sides that are unknown. Students can go to next page and come back to this page in order to explain their reasoning.
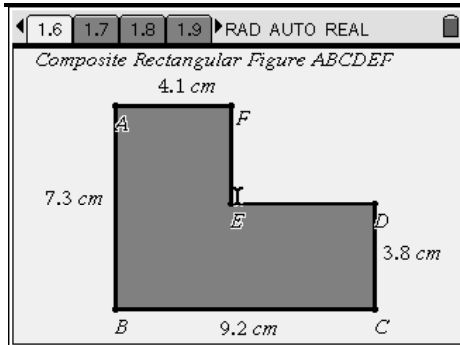
(1.6):   Figure ABCDEF (diagram)

(1.7): Finding the length of EF

7.3 – 3.8= 3.5. Students may also need to go back and explain their reasoning for finding lengths of missing sides.
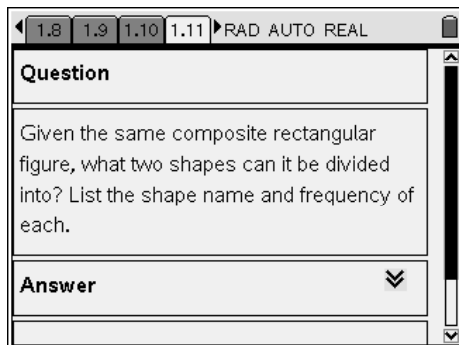
(1.8): Finding the length of DE

9.2 – 4.1 = 5.1.

(1.9): Students must now add all of the length of the sides in order to find the perimeter of the figure.
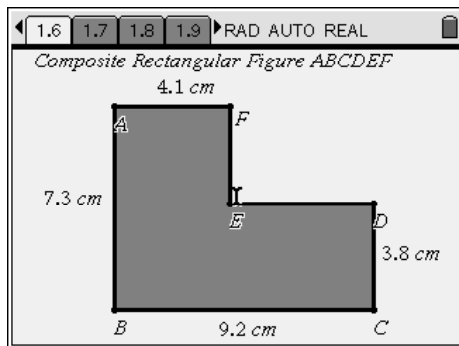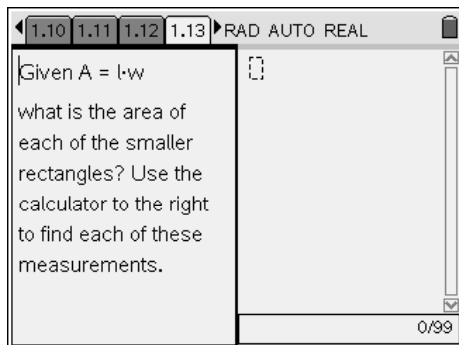
Answer: 33 units.
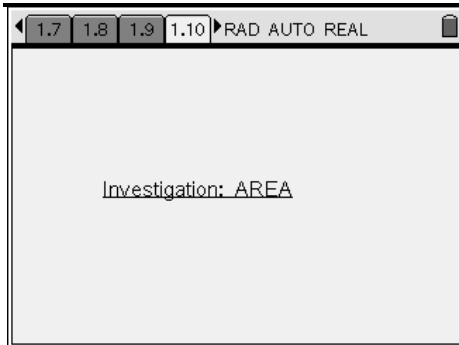
(1.10): Investigation is now changing to area.

(1.11): The shape (figure) can be divided into two rectangles.
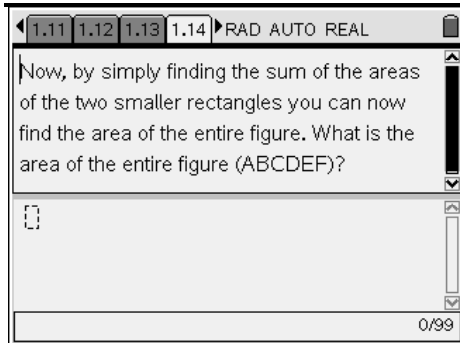

(1.12): Diagram of Figure ABCDEF.
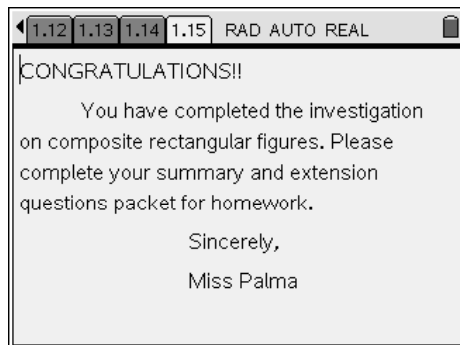

(1.13): Area of each smaller rectangles:

  4.1 * 3.5 = 14.35

  9.2 * 3.8 = 34.96

[1.11] [1.12] [1.13] [1.14] ▶ RAD AUTO REAL 🔋 Now, by simply finding the sum of the areas of the two smaller rectangles you can now find the area of the entire figure. What is the area of the entire figure (ABCDEF)? [] 0/99	(1.14): Sum of the two smaller rectangles will find the total area of the entire figure. 14.35 + 34.96 = 49.31
◀ **[1.12] [1.13] [1.14] [1.15]** RAD AUTO REAL 🔋 CONGRATULATIONS!! You have completed the investigation on composite rectangular figures. Please complete your summary and extension questions packet for homework. Sincerely, Miss Palma	(1.15): Final page: Change the name in for your class or delete the page if preferred.

Assessment and evaluation

Students will complete the word document of summary and extension problems

Activity extensions
- *Students will complete another real-life situation that reflects the problem investigated in this activity. These real-life problems include farm land, wood flooring, along with two generic polygons.*