

Math by Design
Lesson Plan: Area of a Composite Figure

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| National Standard: <u>Measurement</u> : Apply appropriate techniques, tools, and formulas.../...develop strategies to find the area of more-complex shapes |
| MD Standard 3: <u>Knowledge of Measurement</u> |
| MD Topic C: Applications in Measurement |
| MD Indicator 1: Estimate and apply measurement formulas |
| MD Objective b: Estimate and determine area of a composite figure |
| Materials and/or Set Up: <i>Interactive Resources 1</i> and 2, calculators |
| Relevant Vocabulary: Triangle, square, rectangle, parallelogram, trapezoid, base, height, circle, diameter, radius, area formulas for all these figures, composite figure |
| Note to Teacher: This lesson is designed to be used in conjunction with the online interactive activity at http://mathbydesign.thinkport.org . |
| Suggested Activities: <ul style="list-style-type: none">▪ Using <i>Interactive Resource 1</i>, ask the students to determine the area of each figure using the graph paper units. Then have them compare their answers and the methods they used to determine the areas with a partner.▪ Select several students who have used different methods to demonstrate their processes. Introduce the term <i>composite figure</i> at this time and ask the students to define it. Be sure that they connect the meaning of the word composite to its relevance in naming the figure.▪ Facilitate a discussion leading to the conclusion that there is more than one way to determine the area of a composite figure and consequently there will be no single formula that applies to all composite figures.▪ Be sure to include at least one demonstration that involves subtracting an excess area when determining the area.▪ Using <i>Interactive Resource 2</i>, ask students to find the area of each figure using the units provided. Ask several students or groups to demonstrate the methods they used to determine the areas of these figures.▪ Provide additional practice with finding areas of composite figures. Allowing students to check with a partner as they work reassures them that the same area is determined even though different partitions are used. |
| Differentiation Suggestions: <ul style="list-style-type: none">▪ Begin with an activity that reviews area formulas for circles, triangles, rectangles, parallelograms, and trapezoids. Several are available on the illuminations site: |

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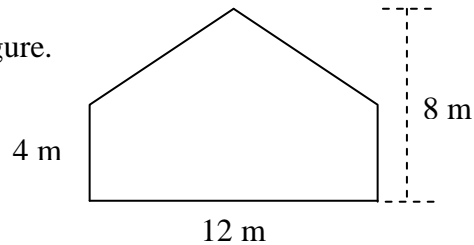
<http://illuminations.nctm.org/ActivityDetail.aspx?ID=108>

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=21>

- Cut out the figures from *Interactive Resources 1* and 2; then cut them apart to demonstrate finding the areas of each region and put them back together to find the total area.

Assessment:

- Find the area of the geometric figure.



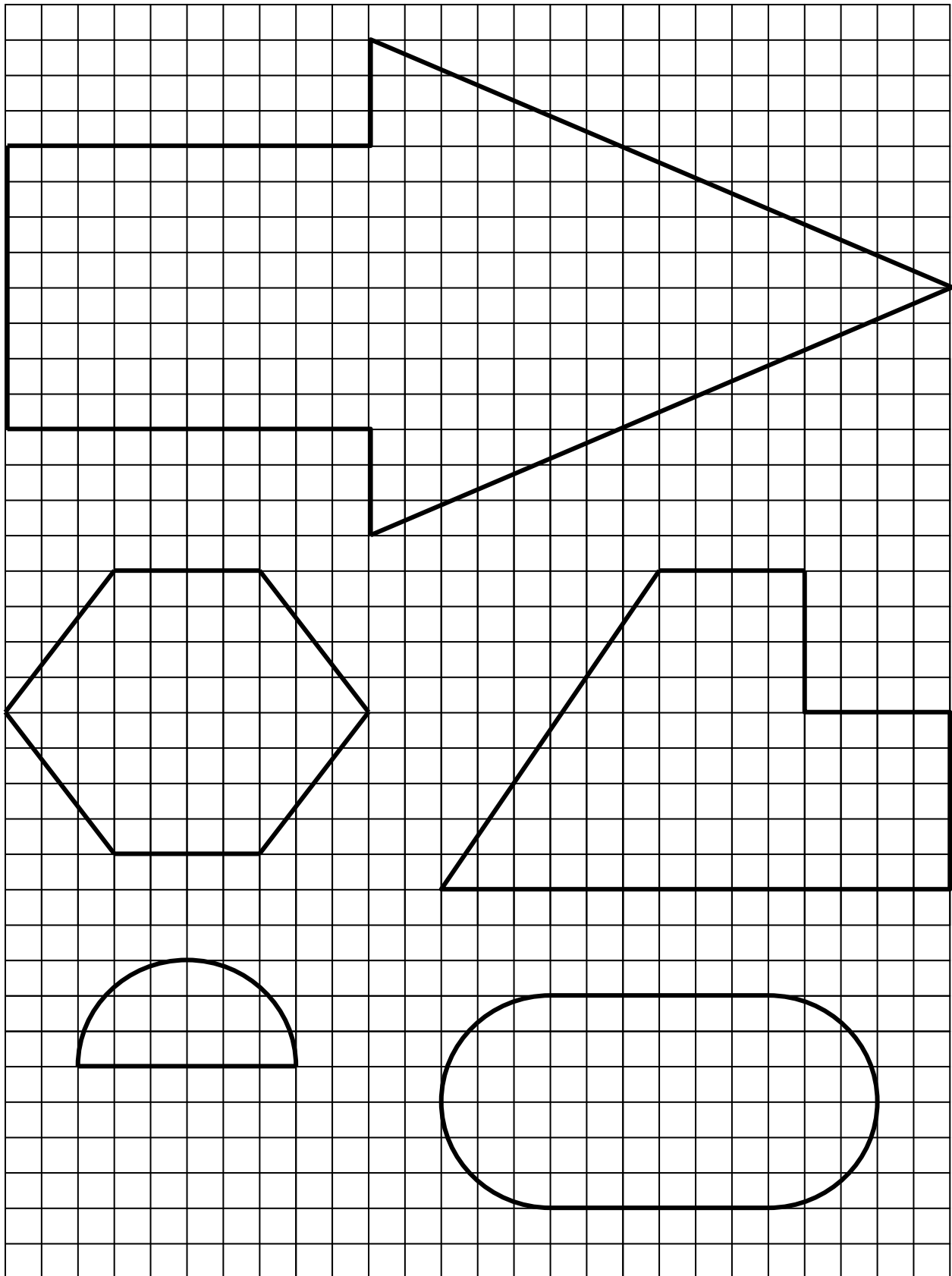
Answer: 72 m^2

Follow Up:

- Provide additional examples for students to practice finding areas. Ask students to design their own figures using graph paper and exchange with a partner to calculate areas.
- Additional examples are available at:
<http://www.staff.vu.edu.au/mcaonline/units/measure/meaarea.html>

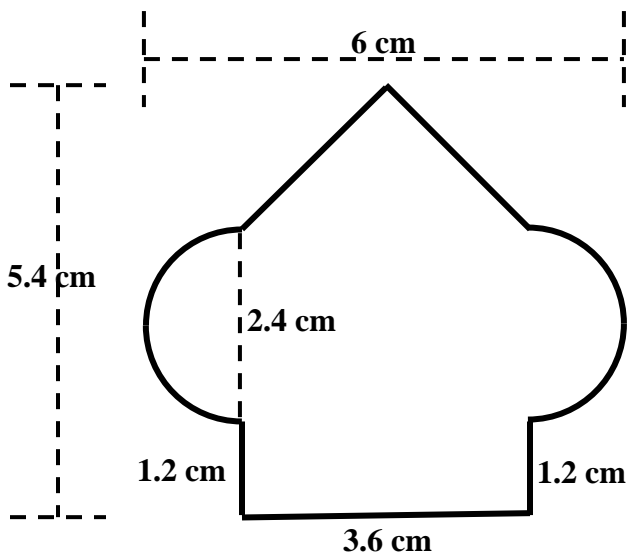
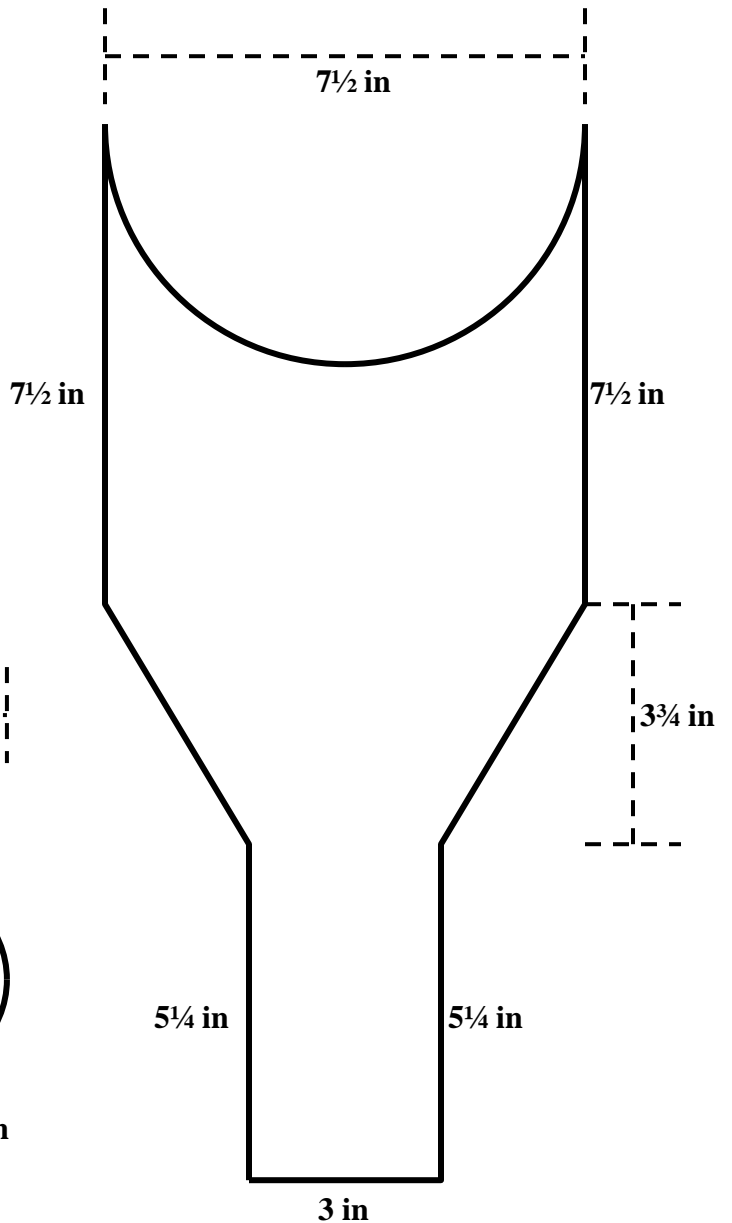
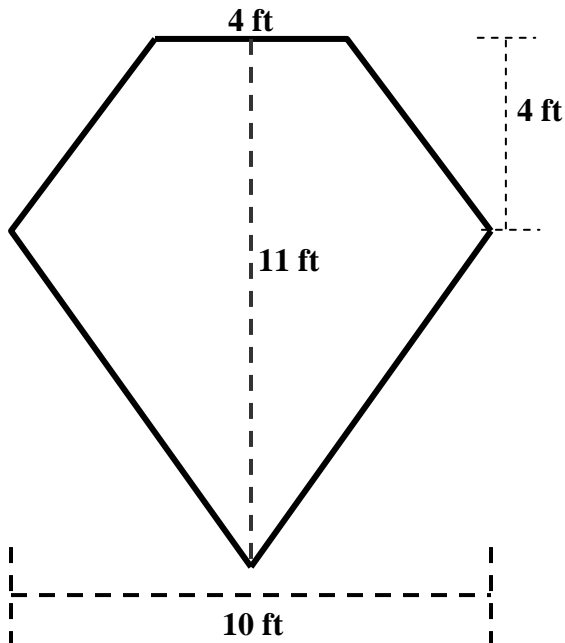
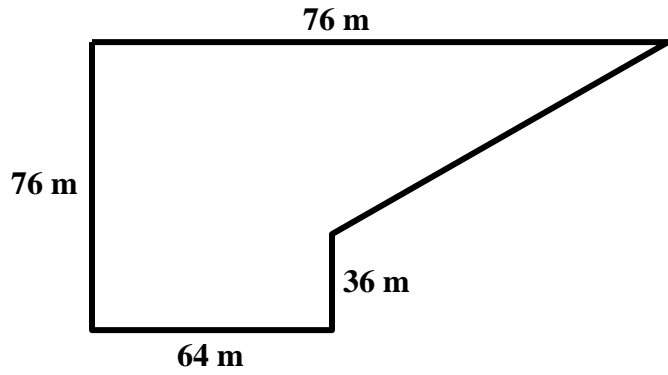
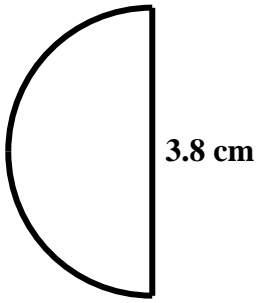
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Interactive Resource 1



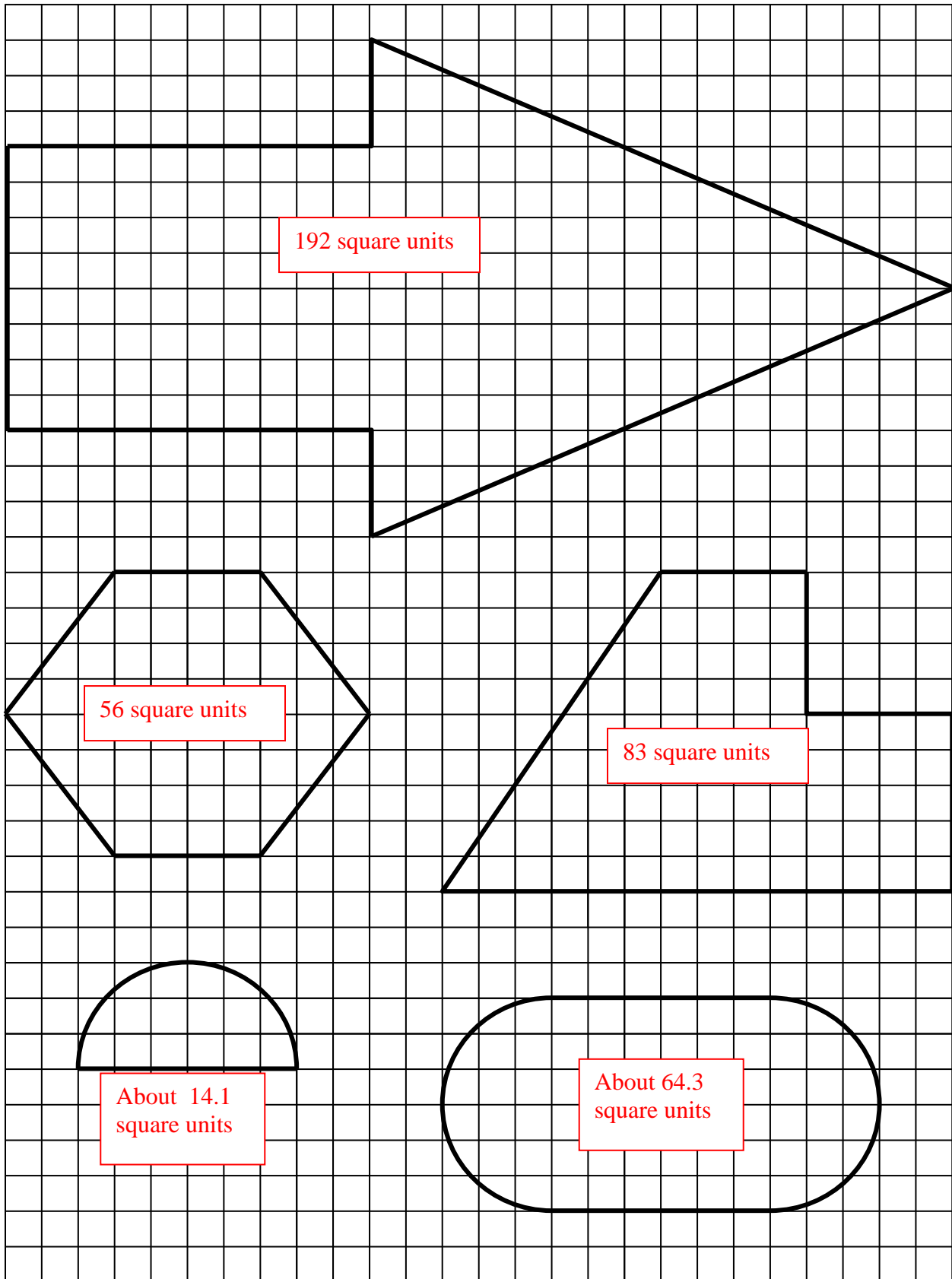
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Interactive Resource 2



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Interactive Resource 1 **Answers:**



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Interactive Resource 2 **Answers:**

