County Concerns

M014 scoring rubric

Math Domain

- [ ] Number/Quantity
- [x] Shape/Space
- [ ] Function/Pattern
- [ ] Chance/Data
- [ ] Arrangement

Math Actions (possible weights: 0 through 4)

- [1] Manipulating/Transforming
- [3] Inferring/Drawing Conclusions
- [2] Communicating

Math Big Ideas

- [x] Scale
- [ ] Reference Frame
- [ ] Representation
- [ ] Continuity
- [ ] Boundedness
- [ ] Invariance/Symmetry
- [ ] Equivalence
- [ ] General/Particular
- [ ] Contradiction
- [ ] Use of Limits
- [ ] Approximation
- [ ] Other

A. The rectangles have the same height, but Rectangle #1 has a longer base than Rectangle #2. Therefore, Rectangle #1 has the larger area.

B. The rectangle and the triangle have the same height. The base of the triangle is 8 units, which is double the base of Rectangle #2 from the previous problem. This means that the triangle has the same area as Rectangle #2. Therefore, Rectangle #1 has a larger area than the triangle.

1. Calculate the area of Jackson County by dividing it into two rectangles (14 miles by 12 miles and 4 miles by 3 miles, or 14 miles by 9 miles and 18 miles by 3 miles). The area is 180 square miles, which converts to 115,200 acres.

   At a cost of $29 per acre, the spraying would cost $3,340,800. The farmers would be expected to gain four times this amount, which is $13,363,200.

2. Adams County has the same area as a rectangle with a base of 16 miles. One way to see this is to cut off a triangle and replace it as shown.

   ![Diagram](image)

   Other students may think of Adams County as a trapezoid, and determine its area to be $\frac{12+16}{2} h$, or 16 h, compared to the area of the rectangle which is 15 h.

   Therefore, Adams County has a larger area than Monroe County.
<table>
<thead>
<tr>
<th>Skill</th>
<th>Partial Level (1 or 2)</th>
<th>Full Level (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modeling/Formulating</td>
<td>Student is able to formulate a strategy which leads to a correct result for either question 1a, 1b, or 1c.</td>
<td>Student formulates a strategy which gives a successful answer for all parts of question 1.</td>
</tr>
<tr>
<td>Transforming/Manipulating</td>
<td>Some computations are correct.</td>
<td>All computations are correct.</td>
</tr>
<tr>
<td>Inferring/Drawing Conclusions</td>
<td>Student is partially successful in using the information gained from the pre-activity to answer question 2.</td>
<td>Student answers question 2 correctly, based on assumptions guided by the pre-activity.</td>
</tr>
<tr>
<td>Communicating</td>
<td>The explanation for question 2 is either not persuasive, or is unclear.</td>
<td>The explanation for question 2 is clear, persuasive, and utilizes all available mathematical justification.</td>
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</tbody>
</table>