**Produce Stand**  

**M017 scoring rubric**  

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

**Math Actions (possible weights: 0 through 4)**  
- 2 Modeling/Formulating  
- 1 Manipulating/Transforming  
- 2 Inferring/Drawing Conclusions  
- 1 Communicating  

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

1. One reasonable answer is that the stand opened for business at 8:00 a.m., and the display was restocked with 100 more oranges at 10:15 a.m.  

2. The oranges sold most quickly between 9 and 10 a.m. During this hour, the oranges sold at a rate of over 65 oranges/hour.  

   This answer can be justified computationally by computing each hour’s net change in the number of oranges: about 35 between 8 and 9 a.m., about 65 between 9 and 10 a.m., about 35 (after an adjustment for the restocking) between 10 and 11 a.m., and about 30 between 11 a.m. and 12 noon.  

   To justify the answer graphically, note that the slope of the graph (which represents the rate of sales) is the steepest or the most negative during the 9 to 10 a.m. hour.
<table>
<thead>
<tr>
<th>Modeling/ Formulating (weight: 2)</th>
<th>partial level (1 or 2)</th>
<th>full level (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Formulates a graphical approach to 2c that is only partially correct.</td>
<td>Devises a graphical procedure for answering 2c, involving a visual conception of slope.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transforming/ Manipulating (weight: 1)</th>
<th>partial level (1 or 2)</th>
<th>full level (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 2b, provide a set of computations that is incorrect or incomplete (e.g., with some of the hour intervals missing).</td>
<td>In 2b, correctly performs computations of how many oranges were sold in each of the four hour intervals.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inferring/ Drawing Conclusions (weight: 2)</th>
<th>partial level (1 or 2)</th>
<th>full level (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gives answers for 1a or 1b that aren’t consistent with the graph, or incorrectly answers 2a.</td>
<td>Gives answers for 1a and 1b that are plausible and consistent with the graph. Gives the correct answer for 2a.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Communicating (weight: 1)</th>
<th>partial level (1 or 2)</th>
<th>full level (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>States numerical answers clearly but does not give an adequate explanation in 2c.</td>
<td>States all answers clearly, especially in 2c where an explanation is needed.</td>
<td></td>
</tr>
</tbody>
</table>