Program #1: Candy hearts

**Due date:** Monday, February 28, 2011

The purpose of this first assignment is to get you used to the Pep/8 environment, simple input/output and arithmetic calculations.

A candy distributor receives a shipment of $N$ candy hearts from the manufacturer.

Unfortunately, one-eighth of them are broken or misshapen and have to be thrown away.

The remaining hearts are mailed to retailers.

A standard mailing box holds 128 hearts and costs $8 to mail. Any hearts left over are shipped out individually at a cost of 50 cents each.

Write and test a Pep/8 assembly language program that inputs $N$ and outputs the total cost of mailing the candy hearts. (Cost may be approximate because of limitations of integer arithmetic – see examples below)

Hint. First sketch out a solution using a high-level language and variables such as `Broken`, `Unbroken`, `Boxes`, `BoxCost` etc.

**By the due date, turn in**

(i) a listing of your program and
(ii) results of testing it. Your report on the program testing should identify any cases where the program output differs from what you expected. You can turn in a table something like

<table>
<thead>
<tr>
<th>Number of Hearts (N)</th>
<th>Expected cost</th>
<th>Cost output by program</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>200</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>400</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>etc</td>
</tr>
</tbody>
</table>

**Grading**

50  **Correctness:** is the program correct?
25  **Testing:** try different inputs. Are there values for which program does not give the correct output?
25  **Readability:** use of comments to give program name, author, date, and explain how the program works. Choice of identifiers.