Homework #2: Program Flow and Number Systems

1. Fill in the following table. Practice getting fast at this, as this will be on the exams.

<table>
<thead>
<tr>
<th>Decimal</th>
<th>Octal</th>
<th>Hexadecimal</th>
<th>Binary</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>0357</td>
<td>0x69</td>
<td>1001110</td>
</tr>
<tr>
<td></td>
<td>0200</td>
<td>0x61</td>
<td>1101001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0x55</td>
<td></td>
</tr>
<tr>
<td>288</td>
<td>0153</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Convert these positional numbers into decimal (base 10), show your work.
   
a. $125_6 =$

b. $147_9 =$

c. $7A_{16} =$

d. $20122_3 =$

e. $2BC_{17} =$
3. Convert the following fractional numbers into Binary, Hex, and Octal:

   a. $21.25_{10} =$ 
   
   b. $3.14_{10} =$ 
   
   c. $19.2_{10} =$ 
   
   d. $2.85_{10} =$ 

4. Convert the following numbers to base 10:

   a. $72.23_8 =$ 
   
   b. $BE.EF_{16} =$ 
   
   c. $110.0110_2 =$