Classifying Real Numbers

Directions:
Write each number in the correct location on the Venn Diagram of the real number system. Each number should be written only once.

\[
\left\{ -6, \ 2.73, \ \frac{3}{7}, \ \sqrt{2}, \ \sqrt{9}, \ -100, \ 0, \ \pi, \ 1, \ -\frac{1}{2}, \ -3.8, \ \sqrt{5.42}, \ 8.293017... \right\}
\]

True or false? If false, explain why.

1) All whole numbers are integers.  
3) Some rational numbers are integers.

2) All integers are whole numbers.  
4) Some whole numbers are irrational numbers.
Understanding Real Numbers

1) List the numbers in the set \( \left\{ \frac{4}{5}, -18, 0, \sqrt{5}, -\frac{1}{2}, -2.01, 5, \pi, 2.513, 5.1823159... \right\} \) that are:

- Whole numbers
- Integers
- Rational numbers
- Irrational numbers
- Real numbers

2) Put a check mark for each set that the number is a part of:

<table>
<thead>
<tr>
<th></th>
<th>Whole Numbers</th>
<th>Integers</th>
<th>Rational Numbers</th>
<th>Irrational Numbers</th>
<th>Real Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \frac{3}{4} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \sqrt{2} )</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>0.398</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

3) True or false? If false, explain why.
   a. All integers are rational.
   b. If a number is rational, then it must be a whole number.
   c. Some irrational numbers are integers.
   d. All irrational numbers are real numbers.
   e. No whole numbers are integers.