Each problem is worth 10 points. Show all work for full credit, and use correct notation. Simplify answers completely. See other side for additional problems.

1. For a double decrement table, given \( q_x^{(1)} = 0.3, p_x^{(2)} = 0.8 \) and \( q_x^{(2)} = 0.18 \), determine \( q_x^{(1)} \).

2. You are given the double decrement table, where decrement \( d \) refers to death and decrement \( w \) refers to withdrawal:

\[
\begin{array}{c|c|c|c}
  x & l_x^{(r)} & d_x^{(d)} & d_x^{(w)} \\
  \hline
  50 & 1000 & - & 200 \\
  51 & - & - & 50 \\
  52 & 300 & 100 & - \\
\end{array}
\]

Determine

(a) \( 2P_{50}^{(r)} \)

(b) \( 2lq_{50}^{(d)} \)
3. You are given the double decrement table, where decrement $d$ refers to death and decrement $w$ refers to withdrawal:

<table>
<thead>
<tr>
<th>$x$</th>
<th>$t_x^{(1)}$</th>
<th>$d_x^{(1)}$</th>
<th>$q_x^{(1)}$</th>
<th>$d_x^{(2)}$</th>
<th>$q_x^{(2)}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>95</td>
<td>-</td>
<td>600</td>
<td>-</td>
<td>-</td>
<td>0.10</td>
</tr>
<tr>
<td>96</td>
<td>-</td>
<td>-</td>
<td>0.40</td>
<td>-</td>
<td>0.20</td>
</tr>
<tr>
<td>97</td>
<td>-</td>
<td>-</td>
<td>0.75</td>
<td>300</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Determine $1_{\frac{1}{2}}q_{95}^{(1)}$.

4. For a triple decrement table, given $\mu_x^{(1)}(t) = 0.15$, $\mu_x^{(2)}(t) = 0.20$, and $\mu_x^{(3)}(t) = 0.65$ determine $0.3_{0.5}q_x^{(3)}$. 