MAP 4175 / 5177   Name:_____
Test 8   Date: November 2, 2016

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 $p_x'^{(1)} = 0.6$, $p_x'^{(2)} = 0.9$ and $q_x^{(1)} = 0.38$,
    determine $q_x^{(2)}$.

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

x	$l_x^{(\tau)}$	$d_x^{(d)}$	$d_x^{(w)}$
50	1000	30	50
51	-	-	20
52	880	30	0

Determine

(a) $_3p_{50}^{(\tau)}$

(b) $_{1|}q_{50}^{(d)}$

3. You are given the double decrement table, where decrement d refers to death and decrement w refers to withdrawal:

x	$l_x^{(\tau)}$	$d_x^{(1)}$	$q_x^{(1)}$	$d_x^{(2)}$	$q_x^{(2)}$
95	-	60	-	-	0.15
96	-	-	0.40	-	0.40
97	-	-	0.50	300	0.50

Determine $_2q_{95}^{(2)}$.

4. For a triple decrement table, given $\mu_x^{(1)}(t) = .05t$, $\mu_x^{(2)}(t) = .20t$, and $\mu_x^{(3)}(t) = .55t$ determine $_{0.3|0.5}q_x^{(2)}$.