

Show all work for full credit, and use correct notation. Simplify answers completely.  
See other side for additional problems.

1. (10 points) For a double decrement model,  $q_x^{(1)} = 0.06$ ,  $q_x^{(2)} = 0.19$ , and  $q_x'^{(2)} = 0.20$ . Determine  $q_x'^{(1)}$ .

2. You are given the double decrement table:

$x$	$l_x^{(\tau)}$	$d_x^{(1)}$	$q_x^{(1)}$	$d_x^{(2)}$	$q_x^{(2)}$
55	1000	-	0.20	100	-
56	-	100	-	200	0.25
57	-	-	-	-	-

Determine

- (a) (10 points)  $q_{56}^{(2)}$

- (b) (10 points)  ${}_2q_{55}^{(\tau)}$

3. (5 points each) Use the L-TAM Standard Service Table to determine

(a)  $q_{40}^{(w)}$

(b)  ${}_5q_{45}^{(d)}$

(c)  ${}_3p_{58}^{(\tau)}$

(d)  ${}_{3|2}q_{57}^{(r)}$