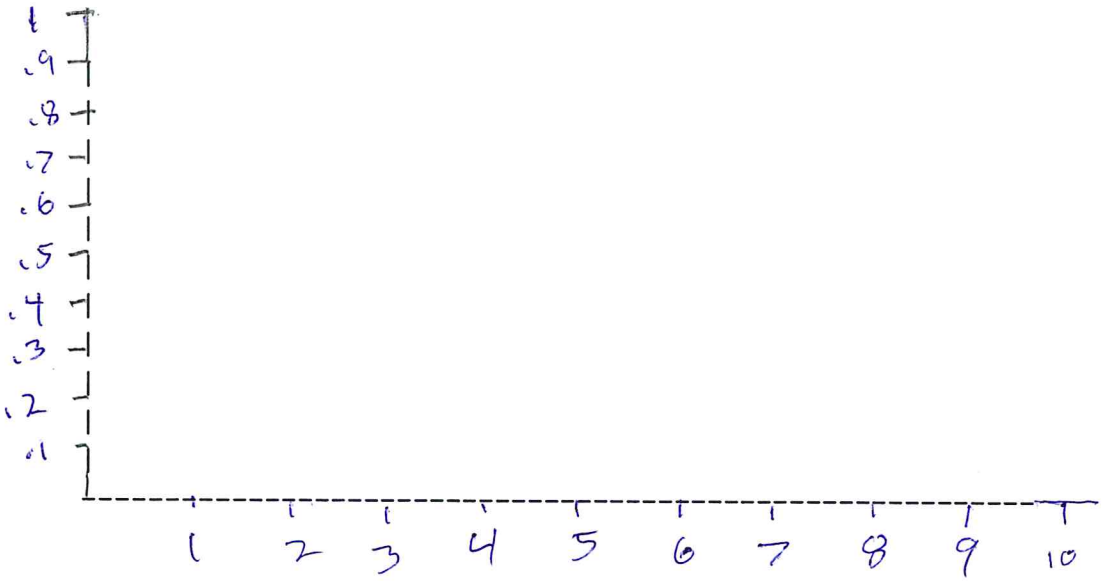
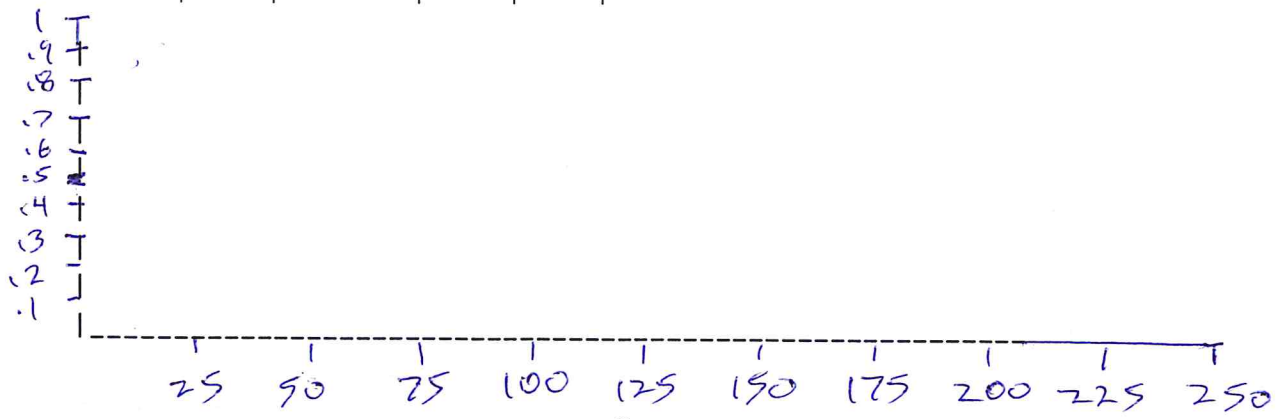
Math 473 Quiz 3 Spring 2021 Name_____

YOU ARE BEING GRADED FOR WORK

1) The data is for survival times for 110 women with stage 1 cervical cancer studied over a 10 year period. Use the life table estimator to compute the estimated survival function $\hat{S}_L(t_i)$ by filling in the table below. Then plot the function.

I_j	d_j	c_j	n_j	n'_j	$\frac{n'_j - d_j}{n'_j}$	$\hat{S}_L(t_i)$
$[0,1)$	5	5	110	107.5	0.9535	1.0000
$[1,2)$	7	7	100	96.5	0.9275	0.9535
$[2,3)$	7	7	86	82.5	0.9152	0.8843
$[3,4)$	3	8	72	68	0.9559	0.8093
$[4,5)$	0	7	61	57.5	1.0	0.7736
$[5,6)$	2	10	54	49	0.9591	0.7736
$[6,7)$	3	6	42	39	0.9230	0.7420
$[7,8)$	0	5	33			
$[8,9)$	0	4	28			
$[9,10)$	1	8	24			
$[10,\infty)$	15	0	15			



2) Survival times for 13 women with tumors from breast cancer that were negatively stained with HPA are given below.
23, 47, 69, 70+, 71+, 100+, 101+, 148, 181, 198+, 208+, 212+, 224+
Compute the Kaplan Meier survival function $\hat{S}_K(t_i)$ by filling in the table below. Then plot the function.

$t_{(j)}$	γ_j	t_i	n_i	d_i	$\hat{S}_K(t_i)$
		$t_0 = 0$			$\hat{S}_K(0) = 1$
23	1	23	13	1	$\hat{S}_K(23) =$
47	1	47			$\hat{S}_K(47) =$
69	1	69			$\hat{S}_K(69) =$
70	0				
71	0				
100	0				
101	0				
148	1	148			$\hat{S}_K(148) =$
181	1	181			$\hat{S}_K(181) =$
198	0				
208	0				
212	0				
224	0