MTH6157 Survival Models

Week 8 Practice Questions – Solutions

Q1

The rate per person hour = 4 / exposed-to-risk

We have all the information needed for an exact exposed-to-risk calculation

arrival time	hours until 12.00	number people	person hours
10.00	2	100	200
10.15	1.75	100	175
10.45	1.25	100	125
11.00	1	100	100
11.30	0.5	100	50
			650

exposed-to-risk = 650 hours

rate per person hour = 4/650 = 0.00615

Q2

q_{35} = 0.000827 = 4 / E^c_{35}

therefore E^c_{35} = 4 / 0.000827 = 4836.759

by the census method if policies in force 1/1/18 = P then

E^c_{35} = 4836.759 = ½ [(1564+1566) + (1566+1648) + (1648+P)]

so P = 2x4836.759 − 1564 − 1566 − 1566 − 1648 − 1648

P = 1681.519 but only makes sense if policies in force is an integer number

therefore P = 1682