

## Generating Service Times For 9 Complaints At Service Station (Pick 9 numbers from column of Random Number Table)

Random Number (RN1)	03	71	33	53	41	16	88	13	15
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### Locate Random Numbers in the RN Range to assign Times

RANDOM NUMBER RANGE	TBA(Seconds)
00-02	0
03-42	30
43-72	60
73-92	90
93-00	120

### Service Times Assigned To Nine Complaints

Complaints	$X_1$	$X_2$	$X_3$	$X_4$	$X_5$	$X_6$	$X_7$	$X_8$	$X_9$
RN1	03	71	33	53	41	16	88	13	15
TBA	30	60	30	60	30	30	90	30	30

## Generating Service Times For 9 Complaints At Service Station (Pick 9 numbers from last column of Random Number Table)

Random Number (RN2)	84	04	54	26	86	33	95	05	56
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### Locate Random Numbers in the RN Range to assign Service Times

RANDOM NUMBER RANGE	SERVICE TIME (MIN)
01-08	20
09-58	40
59-83	60
84-95	80
96-00	100

### Service Times Assigned To Nine Complaints

Complaint Number	X1	X2	X3	X4	X5	X6	X7	X8	X9
Random Number (RN2)	84	04	54	26	86	33	95	05	56
Service Times (ST)	80	20	40	40	80	40	80	20	40

## Simulated Arrival and Service Data

Complaint Number (J)	X1	X2	X3	X4	X5	X6	X7	X8	X9
TBA	30	60	30	60	30	30	90	30	30
Arrival Time , $a_j$	30	90	120	180	210	240	330	360	390
Service Times (ST)	80	20	40	40	80	40	100	20	40

TBA=Time between Arrivals

$a_j$ = Time of Arrival of jth job

$S_j$ = Start time of jth job

$t_j$  = Process time of Jth job.

$C_j$ = Completion time of Jth job

$W_j$ = Waiting time of Jth job

## SIMULATION OF COMPLAINTS AT SERVICE CENTER

Job [1]	RN1 [2]	TBA [3]	$a_j$ [4]	RN2 [5]	$t_j$ [6]	$S_j$ [7]	$C_j$ [8]	$W_j$ [9]	$I_j$
X1	03	30	30	84	80	30	110	0	30
X2	71	60	90	04	20	110	130	20	-
X3	33	30	120	54	40	130	170	10	-
X4	53	60	180	26	40	180	220	-	10
X5	41	30	210	86	80	220	300	10	-
X6	16	30	240	33	40	300	340	60	-
X7	88	90	330	95	100	340	440	10	-
X8	13	30	360	05	20	440	460	80	-
X9	16	30	390	56	40	460	500	70	-

## Performance Measures

Job [1]	$a_j$ [2]	$W_j$ [3]	$S_j$ [4]	$t_j$ [5]	$C_j$ [6]	$I_j$
X1	30	-	30	80	110	30
X2	90	20	110	20	130	-
X3	120	10	130	40	170	-
X4	180	-	180	40	220	10
X5	210	10	220	80	300	-
X6	240	60	300	40	340	-
X7	330	10	340	100	440	-
X8	360	80	440	20	460	-
X9	390	70	460	40	500	-

$W_q$  = Average waiting time =  
 $260/9=28.8$

$I_j$  = Server idle time before the  
start of processing  $J$ th job

Total Idle time = 40

Server Utilization =  $460/500$   
 $=92\%$

## Chronological Events

Event#	Time	A/D	jOB	Lq	Ls
1	30	A	1	0	1
2	90	A	2	1	2
3	110	D	1	0	1
4	120	A	3	1	2
5	130	D	2	0	1
6	170	D	3	0	0
7	180	A	4	0	1
8	210	A	5	1	2
9	220	D	4	0	1
10	240	A	6	1	2
11	300	D	5	0	1
12	330	A	7	1	2
13	340	D	6	0	1
14	360	A	8	1	2
15	390	A	9	2	3
16	440	D	7	1	2
17	460	D	8	0	1
18	500	D	9	0	0