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* Example:-

A grocery store has one checkout counter. Customer arrives at this counter at random from 1 to 8 minutes apart and each interarrival time has the same probability of occurence. The service time vary from 1 to 6 minutes, with probabil given below:

Services (minutes)	1	2	3	4	5	6
Probability	0.10	0.20	0.30	0.25	0.10	0.05

-> Simulate the arrival of 10 customers and calculate:

a) Probability that a customer has to wait.
b) Probability that server being idle.
c) Avg. service time.

Random digit for service time	83	45	74	65	27	79	30	61	89	20

Random digit for Inter-arrival time	302	915	48	235	15	500	650	423	258	7

so, Probability = 1/8 = 0.125
since customer arrive has the same probability of occurence

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Time between arrival	Probability	Cumulative	Random digit for assignment
1	0.125	0.125	1-125
2	0.125	0.25	126-250
3	0.125	0.375	251-375
4	0.125	0.5	376-500
5	0.125	0.625	501-625
6	0.125	0.75	626-750
7	0.125	0.875	751-875
8	0.125	0.1	876-1000

Service Time	Probability	Cumulative	Random assignment
1	0.10	0.10	1-10
2	0.20	0.30	11-30
3	0.30	0.60	31-60
4	0.25	0.85	61-85
5	0.10	0.95	86-95
6	0.05	1	96-100

Customer	Inter arrival	Service	Arrival time	Time service begins	Waiting time	Time service ends	Time customer spends	Idle time of server
1	3	4	3	3	0	7	4	3
2	8	3	11	11	0	14	3	4
3	1	4	12	14	2	18	6	0
4	2	4	14	18	4	22	8	0
5	1	2	15	22	7	24	9	0
6	4	4	19	24	5	28	9	0
7	6	2	25	28	3	30	5	0
8	4	4	29	30	1	34	5	0
9	3	5	32	34	2	39	7	0
10	6	2	38	39	1	41	3	0
		$\Sigma = 34$						$\Sigma = 7$

a) Probability that a customer has to wait = $\frac{\text{no. of customers who wait}}{\text{total no. of customers}}$

$= \frac{8}{10}$

$= 0.8$

b) Probability of server being idle = $\frac{\text{total idle time of server}}{\text{total runtime simulation}} = \frac{7}{41} = 0.171$

c) Avg. service time = $\frac{\text{total service time}}{\text{total no. of customers}} = \frac{34}{10} = 3.4$