IV. A bank found that the average number of cars waiting during the noon hour at a drive-up window follows a Poisson distribution with a mean of 2 cars.   Make a chart of this distribution using a Poisson distribution table.   Graph the distribution and answer these questions concerning the probability of cars waiting at the drive-up window.

A.

P(x) vs Number of Cars Waiting
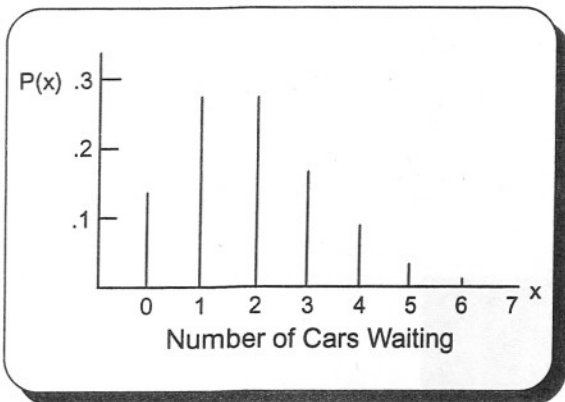
x	$\mu = 2$
0	0.1353
1	0.2707
2	0.2707
3	0.1804
4	0.0902
5	0.0361
6	0.0120
7	0.0034
8	0.0009
9	0.0002

B. No cars waiting

$P(x = 0) = .1353 \rightarrow 13.53\%$

C. Two cars waiting

$P(x = 2) = .2707 \rightarrow 27.07\%$

D. At least three cars waiting

$P(x \geq 3) = [1 - (.1353 + .2707 + .2707)] = [1 - .6767] = .3233 \rightarrow 32.33\%$

E. Not as many as 3 cars waiting

$P(x \leq 2) = .1353 + .2707 + .2707 = .6767 = 67.67\%$

Note: The events described by questions C and D are complements and their answers total to one.