

1) Write a C++ Segment code to Generate 10 random integers between 1 and 100

2) Use the Following Linear Congruential ential

$$z_0 = 1, \quad z_i = (13z_{i-1} + 13) \text{ Mod } 16$$

to generate the First Five integers in its sequence. Check whether the generator has a Full period or not .

3) The following table contains values of X and their corresponds probabilities

x	p (x)
1	0.25
2	0.60
3	0.15

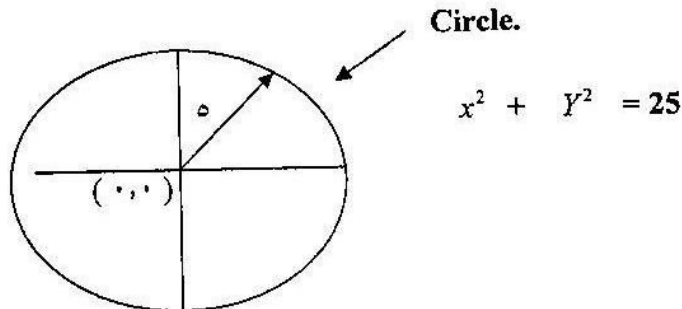
Show (by a pseudo code) how to generate a random sample of size 10 from this distribution .

4) The following is the frequency table of a random X.

Interval	frequency
2-5	5
6-9	20
10-13	50
14-17	13
18-21	12

If a uniformly generated value is $u = 0.72$, With $u \sim U(0, 1)$, what would be the corresponding simulated value of X ?

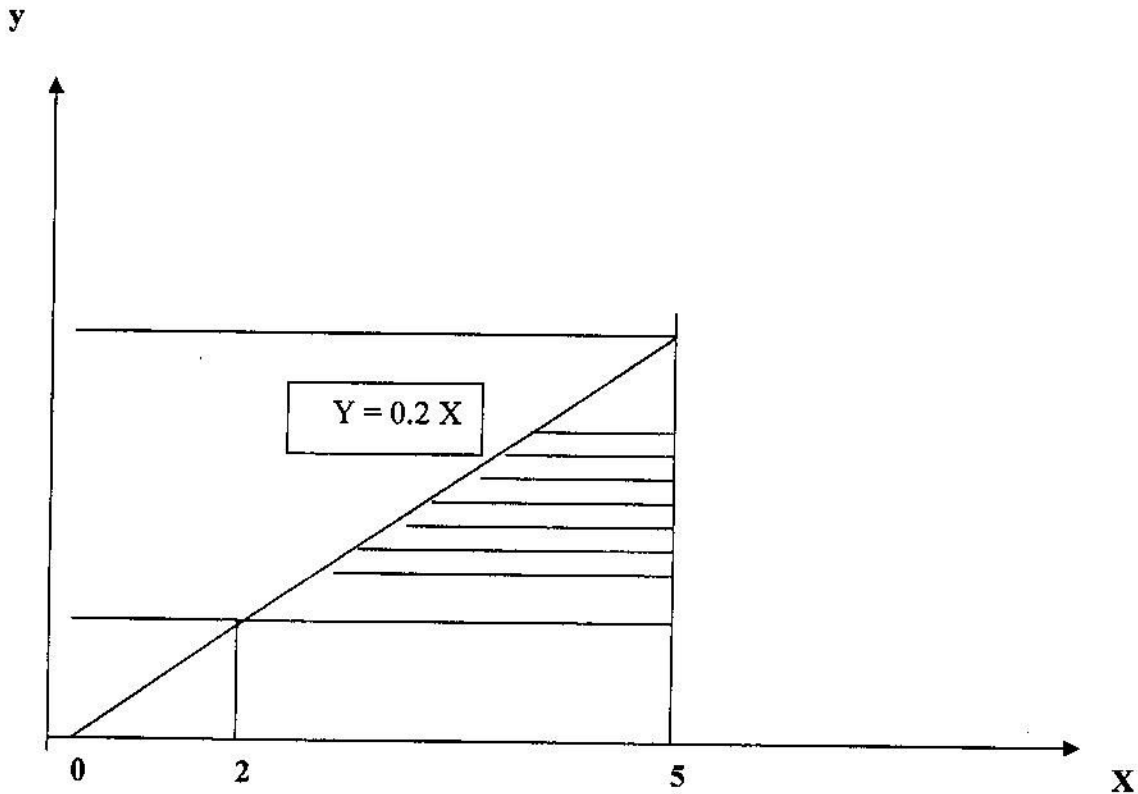
5.



Use Simulation to estimate the area of the circle .

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6)



- Generate one observation from this distribution (the density is the shaded region) using the acceptance - rejection technique.
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7) Draw a flow - chart to show how to simulate an M / M / 1 queue .

Define clearly any variables (or arrays you might use) .

Your Flow - Chart should result in Calculating at least 3 major measures of performance, using 100,000 runs .