	- INDE 504 : Disorete Event Simulation.
	- Instruction: Dr. Bacel Hadolah.
	Assignment 5: Random Number Generator
	Ex. 4.2:
alph	Applications for Pseudo Random Number Cunerators:
auawad.	Cryptography: cenerate keys for encrypting & decrypting data;
20220466'7.	Finance: use thate carlo methods for option priting.  Hachine learning: Initialize weights randomly while training.
	EX 7.4:
	X = 27; a = 8; c = 47; m = 100.
	Using linear congruential acremators (LCG):
	X1 = (8X0 + 4+1) (mod 100)
	= (8x27+47) (wood 100)
	= 263 Wood 100
	=63.
	$u_1 = x_1/m = \frac{G^3}{100} = 0.63$
	X2 = (8 x 63 + 47) (mod 100) = 551 mod 100
	Uz = 51/100 = 0.51.
	X3 = (8 x 51 + H7) (mod 100)
	= 455 wood too
	2 55
	U3 = 55/100 = 0.55.
	Ex 7.5:
	If we set x =0 in the previous exercise, we should not get
	a problem with one ROG as we are not changing the important
	parameters such as a bir.
	a=8; c=47; w=100
	, c & m are relatively prime (common div = 1).
	3 & 8 3 don't devide a-1=7.

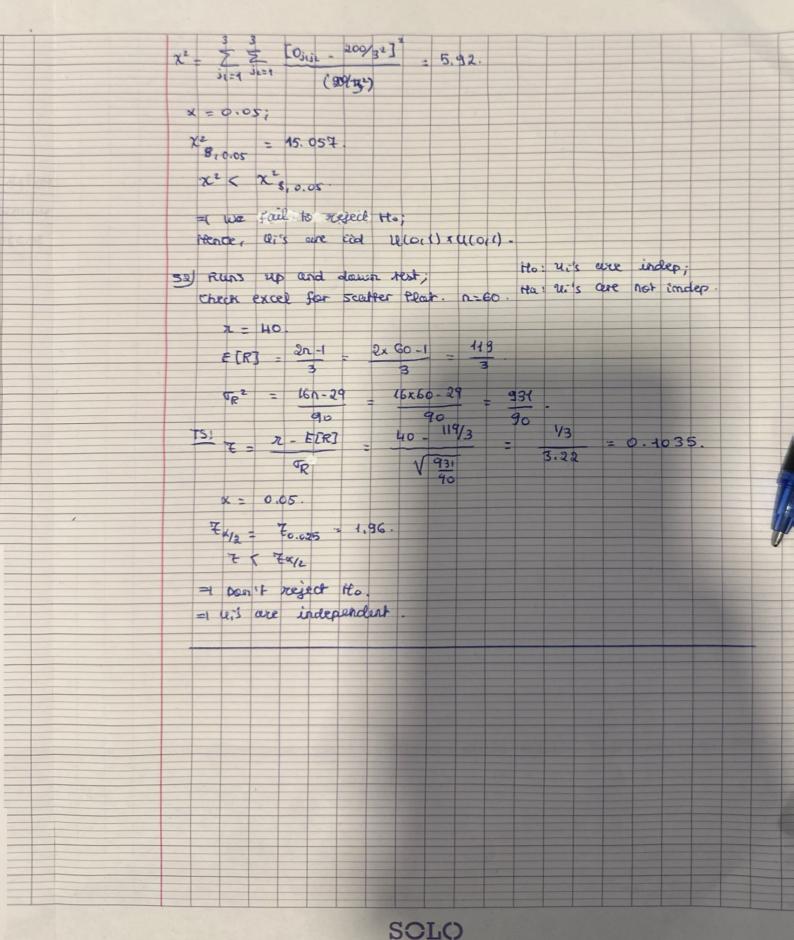
to deern't play a role in it.

Scanned with

CS CamScanner

```
EX 7.6:
  multiplicative Sensor Congruential Generator:
  100 min c = 0; Xo = 111; a = 43; m = 1000
  X1 = (43 X0) wood 1000
  = (43× 117) ( wood 100)
   = 5031 wed 1000 = 31.
  U1 = 31/1000 = 0.031.
   X2 = 43 × 31 (mod 1000)
      = 1333 mod 1000 = 333.
   U_2 = \frac{333}{1000} = 0.333.
   X3 = (43 x 383) mad 1000
   = 14319 had 1000
     = 319.
   u_3 = 319/1000 = 0.319.
   K4 = (43 x 319) mod 1000
     = 13717 mod 1000
    = 717,
   U4 = 717/1000
     = 0.717.
Supplement Problems.
There Excel Files for RNG Techs;
  On = 20; 01 = 22; 013 = 17;
  021 = 18; 022 = 22; 023 = 23;
  03, = 21; 032 = 25; 033 = 28.
  Ho: le's are ital U(o11) x U(o11);
  Ha: Ui's aren't aid U(0,1) x U(0,1)
```

SOLO



2/4