

Seeds = X_i , Multiplier = a , Increment = c , Modulus = m
 $X_{i+1} = (aX_i + c) \bmod(m); i = 0, 1, 2, 3, \dots$

$D_\alpha \Rightarrow$
 Critical
 Value
 $N = 10$

From Table A.8
 = 0.4100

X_0	=	8
a	=	11
c	=	0
m	=	16

Chapter 07: Q15 (b) CS312 Computer Simulation, with
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Sr	Xn	Mod Value	Random Number	Convert to smallest to largest	R(i)	Random Number (Reorder)
1	88	1	0.063		1	0.063
2	11	11	0.688		2	0.063
3	121	9	0.563		3	0.063
4	99	3	0.188		4	0.188
5	33	1	0.063		5	0.188
6	11	11	0.688		6	0.563
7	121	9	0.563		7	0.563
8	99	3	0.188		8	0.688
9	33	1	0.063		9	0.688
10	11	11	0.688		10	0.688

Step 01

i	1	2	3	4	5	6	7	8	9	10
R(i)	0.0625	0.0625	0.0625	0.1875	0.1875	0.5625	0.5625	0.6875	0.6875	0.6875
i/N	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Step 02 $D^+ = \frac{i}{N} - R_i$	0.0375	0.1375	0.2375	0.2125	0.3125	0.0375	0.1375	0.1125	0.2125	0.3125

$$D^- = R_i - \frac{i-1}{N}$$

0.0625	-0.0375	-0.1375	-0.1125	-0.2125	0.0625	-0.0375	-0.0125	-0.1125	-0.2125
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$$\alpha = \dots \rightarrow$$

Level of significance

= 0.05

Step 3:
 $D = \max(D^+, D^-)$

0.0625	0.1375	0.2375	0.2125	0.3125	0.0625	0.1375	0.1125	0.2125	0.3125
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$$D^+\{max\} =$$

0.3125

$$D = \max(D^+, D^-) =$$

0.3125

DSD_α, conclude that no difference has been
 detected between the true distribution of
 {R₁, R₂, ..., R_N} and the uniform distribution.