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Example 10: A Bombing Mission, page 68, Chapter 02
Consider a bomber attempting to destroy an ammunication depot. (This bomber has conventional rather than laser-guided weapons). If a bomb falls anywhere inside the target, a hit is scored; otherwise, the bomb is a miss. (Note that when a bomb appears appears visually to have touched a boundary line, it may or may not have hit the target; the model determines mathematically whether a hit has occurred, using the (X,Y) coordinates nd the equations of the piecewise-linear boundary of the depot.)
The bomber flies in the horizontal direction and carries 10 bombs. The aiming point is (0,0). The actual point of impact is assumed to be normally distributed around the aiming point with a standard deviation of 400 meters in the direction of flight and 200 meters in the perpendicular direction. The problem is to simulate the operation and estimate the number of bombs on target.
Recall that the standardized normal variate Z, having mean $\mu = 0$, and standard deviation $\sigma = 1$, is distributed as

$$Z = \frac{X - \mu}{\sigma}$$

Where X is a normal random variable, Then, with mean zero and standard deviations given by
$\sigma_X = 400 \; and \; \sigma_Y = 200$, we have

$$Z_X = \frac{X}{400}, Z_Y = \frac{Y}{200}$$

Where (X,Y) are the simulated coordinates where the bomb hits.

Number of Hits	Number of Miss	No. of Trials	Probability of Hits	Probability of Misses	PDF
27	13	40	0.675	0.325	1

σ_X	=	400
σ_Y	=	200

X range: $X_{low} \leq X \leq X_{high}$,
Y range: $Y_{low} \leq Y \leq Y_{high}$,

$Z_X \; and \; Z_Y$
$Random \; Normal \; Number$,

X_{low}	=	-1300
X_{high}	=	1300
Y_{low}	=	-200
Y_{high}	=	200

Bomb	Z_X	σ_X	X	Z_Y	σ_Y	Y	Hit Or Miss?
1	-1.26	400	-505	0.49	200	97	Hit
2	-0.11	400	-43	-0.20	200	-39	Hit
3	0.03	400	13	0.44	200	87	Hit
4	0.75	400	301	0.72	200	144	Hit
5	-0.57	400	-227	0.32	200	65	Hit
6	0.25	400	102	-1.03	200	-207	Miss
7	-1.28	400	-513	-0.53	200	-106	Hit
8	-0.73	400	-294	0.86	200	172	Hit
9	0.27	400	107	-0.12	200	-23	Hit
10	-1.46	400	-583	-1.23	200	-246	Miss
11	1.25	400	501	2.23	200	445	Miss
12	-2.15	400	-859	0.61	200	123	Hit
13	-1.66	400	-665	0.78	200	156	Hit
14	-0.25	400	-102	-0.74	200	-148	Hit
15	-0.91	400	-363	-0.15	200	-29	Hit
16	1.24	400	496	-0.81	200	-163	Hit
17	0.80	400	319	0.02	200	3	Hit
18	-2.41	400	-962	-0.71	200	-142	Hit
19	0.71	400	285	-0.30	200	-61	Hit
20	-0.33	400	-133	-0.42	200	-84	Hit
21	1.02	400	408	1.08	200	216	Miss
22	1.52	400	608	1.26	200	253	Miss
23	-1.63	400	-651	-1.88	200	-376	Miss
24	-2.08	400	-833	-0.10	200	-20	Hit
25	-1.72	400	-686	-1.97	200	-393	Miss
26	0.11	400	45	0.42	200	85	Hit
27	-0.13	400	-52	-0.70	200	-141	Hit
28	1.25	400	502	0.63	200	126	Hit
29	0.04	400	18	1.07	200	213	Miss
30	1.69	400	675	-0.32	200	-64	Hit
31	-0.83	400	-332	-2.20	200	-440	Miss
32	0.60	400	238	-0.60	200	-121	Hit
33	0.29	400	115	-0.38	200	-77	Hit
34	0.39	400	157	-1.11	200	-222	Miss
35	1.16	400	463	2.14	200	428	Miss
36	0.51	400	202	-2.61	200	-522	Miss
37	-0.32	400	-127	-1.00	200	-200	Hit
38	0.42	400	170	0.11	200	22	Hit
39	1.31	400	522	-0.41	200	-83	Hit
40	0.56	400	223	-2.04	200	-407	Miss