If the two outcomes are *not* mutually exclusive:

$$P\left(\{2 \times H\} \cup \{3 \times H\}\right) = \frac{4}{8} + \frac{1}{8} - \frac{1}{8} = \frac{4}{8} = 0.5$$

$$P\left(\{2 \times H\} \cap \{1 \times T\}\right) + P\left(3 \times H\right)$$

– the mean of x is 9

– the variance of x is 11

– the mean of y is 7.50

– the variance of y is 4.125

– the correlation coefficient of x and y is 0.816

– the best fit line is given by $y = 3.00 + 0.500x$

urn:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
10 samples selected with replacement:	5	2	12	19	10	5	3	19	11	4										
10 samples selected with replacement:	$\boxed{5}$	2	12	$\boxed{19}$	10	$\boxed{5}$	3	$\boxed{19}$	11	4										
10 samples selected without replacement:	15	8	13	5	4	19	7	1	20	10										

$$P(H, H, T) + P\left(\text{⚁}, \text{⚅}\right) - P\left(H, H, H \cap \text{⚁}, \text{⚅}\right)$$

$$p = 2/3$$

We failed to reject $H_\circ$ for $\hat{p} = \frac{2}{5} = 0.4$. How about $\hat{p} = \frac{6}{15} = 0.4$?

$$k \in R$$

Next, how about $\hat{p} = \frac{12}{30} = 0.4$?
Which values of p are compatible with the observation of $k = 2$ successes out of $n = 5$ claims?

$$P(k \leq 2 | p = 2/3, n = 5) = \sum_{i=0}^{2} \binom{5}{i} (2/3)^i (1/3)^{n-i} = 0.21 \geq \alpha/2$$

Assuming that $H_\circ$ is true, the probability of incurring a type-I error is:

1 experiment: $\alpha = 5\%$

2 experiments: $1-(1-\alpha)^2 = 9.75\%$

3 experiments: $1-(1-\alpha)^3 = 14\%$

48 experiments: $1-(1-\alpha)^{48} = 91.5\%$

N experiments: $1-(1-\alpha)^N\%$

Bonferroni correction: α/N

What is λ?

the binomial distribution

the Poisson distribution

What is so normal about the Gaussian distribution?

What is $s[z]$?

$$s[d] = \sqrt{s[x]^2 + s[y]^2}$$

$$z = x + y$$

$$z = x - y$$

$$s[z]^2 = s[x]^2 + s[y]^2$$

$$z = xy$$

$$\left(\frac{s[z]}{z}\right)^2 = \left(\frac{s[x]}{x}\right)^2 + \left(\frac{s[y]}{y}\right)^2$$

$$s[y]^2 = y^2\left(2\frac{s[t]}{t}\right)^2$$

$$2 \times 0.0000042 = 0.0000084 < \alpha$$

P($\geq$ 9.0 earthquake)?

$$\frac{\begin{array}{c}44 + 51 + 79 + 65 + 27 + 31 + 4 + 355 + 22 + 352 + 287 + 7 + 287 + 339 + 0 \\ 276 + 342 + 355 + 334 + 296 + 7 + 17 + 351 + 349 + 37 + 339 + 40 + 324 + 325 + 334\end{array}}{30}$$

$$= 189.2^\circ$$

$$\sin[\theta \pm \phi] = \sin[\theta]\cos[\phi] \pm \cos[\theta]\sin[\phi]$$

$$359^\circ - 1^\circ = 2^\circ$$

$$\bar{R} = 0.88$$

$$s_c = 0.51$$

$$s_c = 2.04$$

x	0.85	0.84	0.83	0.8	0.77	0.75	0.74	0.73	0.71	0.6
y	0.53	0.54	0.56	0.6	0.64	0.66	0.67	0.68	0.71	0.8
x	-0.87	-0.85	-0.83	-0.8	-0.77	-0.75	-0.74	-0.73	-0.69	-0.64
y	-0.50	-0.53	-0.56	-0.6	-0.64	-0.66	-0.67	-0.68	-0.72	-0.77