

Statistics Symbols to Memorize

Chapter 3

Symbol	How to pronounce it	What is it?	What does it mean?
μ	mu	Population mean	This is the arithmetic mean aka average. Add all of your values together and divide by the count.
\bar{x}	x bar	Sample mean	Same as above, but for a sample
Σ	sigma (capital Greek letter)	Summation	Add all of these values together
σ (TIs say σx)	Sigma (lower case Greek letter)	Population standard deviation	An calculation that of how spread apart your data is (dispersion) and it's the square root of the variance
s or SD or (TIs say Sx)	s	Sample standard deviation	“ “
σ^2	sigma squared	Population variance	The average of the squared differences from the population mean
s^2	s squared	Sample variance	The average of the squared differences from the sample mean
P_k	k-th percentile	Percentile	*k percentage of the data is at or below this value
Q_1	Q one	First quartile	25th percentile
M = MED = Q_2	median or Q two	Median or Second Quartile	50 th percentile
Q_3	Q three	Third Quartile	75 th percentile
z	z	Z score or standard score	This tells the number of standard deviations your value is away from the mean.
n	n	Sample size	Number of elements in your sample
N	N	Population size	Number of elements in your population
IQR	IQR	Interquartile range	The range of the middle 50% of the data. $Q_3 - Q_1$

*There are different definitions depending on where you look.

Chapter 4

Symbol	How to pronounce it	What is it?	What does it mean?
$b_1 = a$ (TI) = m (college algebra)	b sub zero a m	Slope	For every 1 – unit increase in the x variable, the y-variable increases by $ a $, on average.
$b_0 = b$ (TI and college algebra)	b sub one b	y-intercept	This is where the graph crosses the y-axis aka the value of y when $x = 0$.
r	r	Correlation coefficient	It tells you the strength and direction of the linear relationship.
R^2	R squared	Coefficient of determination	This tells the % of variation explained by the least-squares regression line. In linear equations, it is r^2 .
\hat{y}	y hat	The least-squares regression line	The is the symbol used to represent the least-squares regression line

Chapter 5

Symbol	How to pronounce it	What is it?	What does it mean?
$P(A)$	Probability of A	The probability of event A	This is the likelihood of event A occurring.
$P(A B)$	Probability of A given B	Conditional probability	The probability that event B will happen, given that event A has already happened
$P(A^c)$	Probability of A complement	The probability of the complement of A	The probability that event A does not happen

Chapter 6

Symbol	How to pronounce it	What is it?	What does it mean?
$E(X)$	E of x	Expected Value	The expected value is the mean of the random variable

Chapter 7

Symbol	How to pronounce it	What is it?	What does it mean?
$E(X)$	E of x	Expected Value	the mean of the distribution
z_α	z sub alpha	The z-score that has the probability of α to the right	
E or MOE	E margin of error	Margin of Error	The maximum expected difference between the true population parameter and the sample estimate

Chapter 8

Symbol	How to pronounce it	What is it?	What does it mean?
$\mu_{\bar{x}}$	Mu sub x-bar	Mean of the sampling distribution of the sample mean	
$\sigma_{\bar{x}}$	Sigma sub x-bar	Standard error aka standard deviation of the sampling distribution of the sample mean	
p	p	Population proportion	
\hat{p}	p hat	Sample proportion	
$\mu_{\hat{p}}$	mu sub p hat	Mean of the sampling distribution of the sample proportion	
$\sigma_{\hat{p}}$	sigma sub p hat	Standard error aka standard deviation of the sampling distribution of the sample proportion	
SE	standard error	Standard error	Standard deviation of the sampling distribution

Chapter 9

Symbol	How to pronounce it	What is it?	What does it mean?
E or MOE	E margin of error	Margin of Error	The maximum expected difference between the true population parameter and the sample estimate
$z_{\alpha/2}$	z sub alpha, negative z sub alpha, z sub alpha over two	Critical value for the normal distribution	The positive z-score associated with the given confidence interval
$t_{\alpha/2}$	t sub alpha, negative t sub alpha, t sub alpha over two	Critical value for the Student's t distribution	The positive t-score associated with the given confidence interval

Chapter 10

Symbol	How to pronounce it	What is it?	What does it mean?
H_0	H sub zero or H naught	Null hypothesis	The hypothesis about the population parameter (the status quo)
H_1	H sub one or H one	Alternative hypothesis	The hypothesis you believe is actually true and you are trying to find proof of
α	alpha	The level of significance	The probability of making a Type I error; the rejection level
β	Beta		The probability of making a Type II error
$z_{\alpha}, -z_{\alpha}, \pm z_{\alpha/2}$	z sub alpha, negative z sub alpha, z sub alpha over two	Critical values for the normal distribution	The value that a test statistic must exceed in order for the null hypothesis to be rejected
$t_{\alpha}, -t_{\alpha}, \pm t_{\alpha/2}$	t sub alpha, negative t sub alpha, t sub alpha over two	Critical values for the Student's t distribution	" "
df	d f	Degrees of freedom	For the Student's t distribution, it is $n - 1$. It is the number of independent pieces of information.

P-value	P value	P-value	The probability of getting your sample or a sample more extreme than yours
z_0	z sub zero	Test statistic for the normal distribution	The z-score that represents your sample
t_0	t sub zero	Test statistic for the Student's t distribution	The t-score that represents your sample