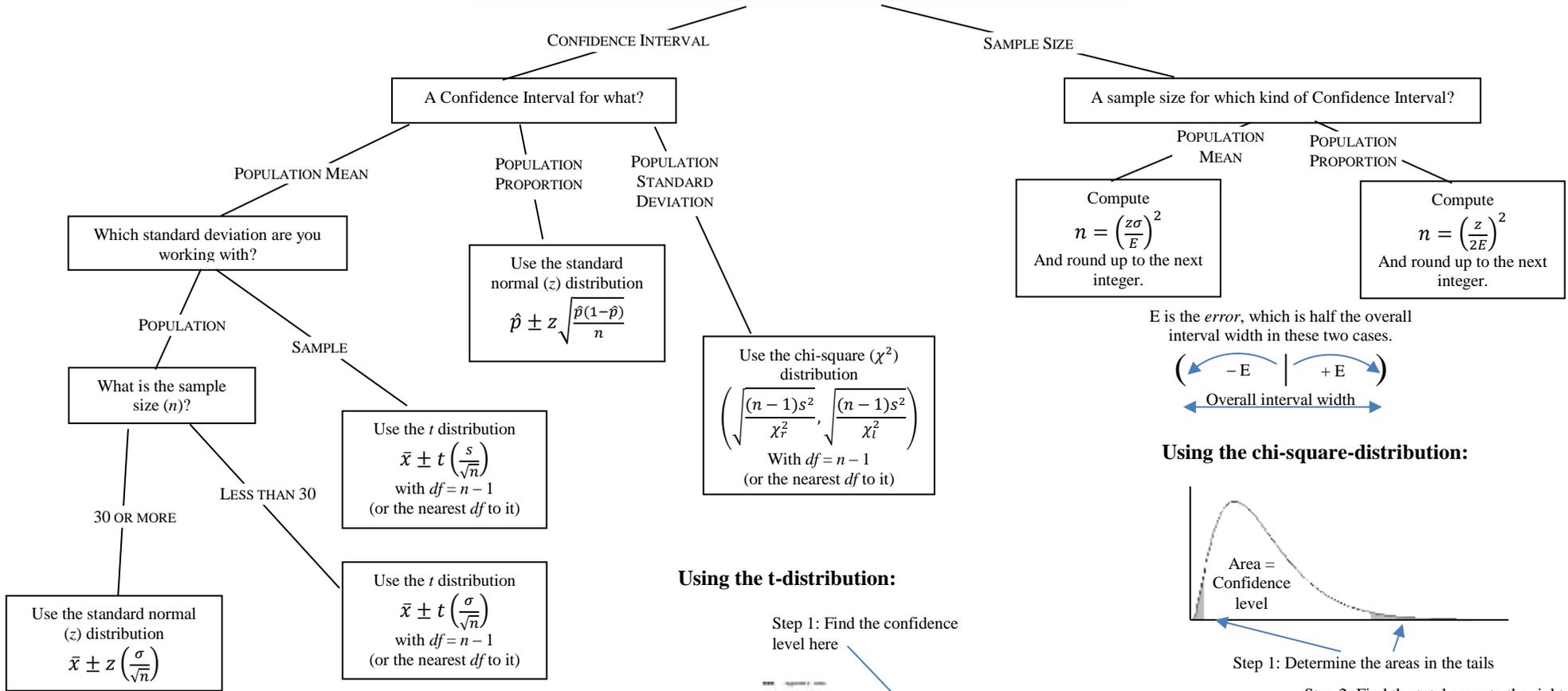


ELEMENTARY STATISTICS

CONFIDENCE INTERVALS & ASSOCIATED COMPUTATIONS

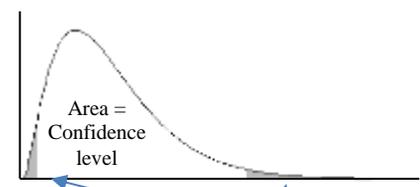
Are you asked to compute a confidence interval, or a sample size in order to generate a confidence interval of some specified size?



E is the error, which is half the overall interval width in these two cases.



Using the chi-square-distribution:



Step 1: Determine the areas in the tails

Step 2: Find the total areas to the right of each boundary in the top row.

Using the t-distribution:

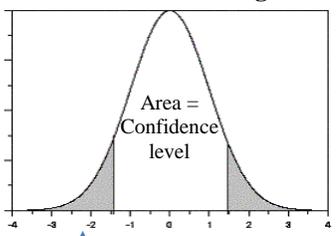
Step 1: Find the confidence level here

Area in the Tail	df	t
0.10	1	3.078
0.10	2	1.886
0.10	3	1.638
0.10	4	1.533
0.10	5	1.476
0.10	6	1.440
0.10	7	1.415
0.10	8	1.393
0.10	9	1.372
0.10	10	1.356
0.10	15	1.341
0.10	20	1.328
0.10	30	1.310
0.10	40	1.301
0.10	50	1.294
0.10	60	1.289
0.10	70	1.285
0.10	80	1.282
0.10	90	1.280
0.10	100	1.279

Step 2: Find df = n - 1 here.

Step 3: The t-value is this number

Using the z-distribution:



Step 1: Determine the area in the left tail.

Step 3: The z-value comes from combining these two numbers

Area to the Left of z	z
0.0044	-2.05
0.0045	-2.04
0.0046	-2.03
0.0047	-2.02
0.0048	-2.01
0.0049	-2.00
0.0050	-1.99
0.0051	-1.98
0.0052	-1.97
0.0053	-1.96
0.0054	-1.95
0.0055	-1.94
0.0056	-1.93
0.0057	-1.92
0.0058	-1.91
0.0059	-1.90
0.0060	-1.89
0.0061	-1.88
0.0062	-1.87
0.0063	-1.86
0.0064	-1.85
0.0065	-1.84
0.0066	-1.83
0.0067	-1.82
0.0068	-1.81
0.0069	-1.80
0.0070	-1.79
0.0071	-1.78
0.0072	-1.77
0.0073	-1.76
0.0074	-1.75
0.0075	-1.74
0.0076	-1.73
0.0077	-1.72
0.0078	-1.71
0.0079	-1.70
0.0080	-1.69
0.0081	-1.68
0.0082	-1.67
0.0083	-1.66
0.0084	-1.65
0.0085	-1.64
0.0086	-1.63
0.0087	-1.62
0.0088	-1.61
0.0089	-1.60
0.0090	-1.59
0.0091	-1.58
0.0092	-1.57
0.0093	-1.56
0.0094	-1.55
0.0095	-1.54
0.0096	-1.53
0.0097	-1.52
0.0098	-1.51
0.0099	-1.50

Step 2: Find the area in the left tail.

Step 3: Find df = n - 1 here.

Degrees of Freedom	0.995	0.990	0.985	0.980	0.975	0.970	0.965	0.960	0.955	0.950	0.945	0.940	0.935	0.930	0.925	0.920	0.915	0.910	0.905	0.900
1	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69	63.69
2	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51
3	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13
4	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71
5	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61	6.61
6	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95
7	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59
8	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32	5.32
9	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12
10	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97
11	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84
12	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72
13	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61
14	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51
15	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42
16	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34
17	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27
18	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20
19	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14
20	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
21	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03
22	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98

Step 4: The two chi-square values are here