Example: This semester there were seven sections of a particular math course at Dawson. Does the data indicate that the students had a preference for certain sections?

Section	1	2	3	4	5	6	7
Number of students	18	12	25	23	8	19	14

In the previous example we tested to see if the distribution was uniform, we can also use χ^2 to decide if a distribution is binomial, poisson, normal, etc.

Example: On a daily basis, a sample of 10 tires is taken from cars in a certain city, for 200 days. Four categories are used to classify the 10 tires, namely

- No defective tires
- One defective tire
- Two defective tires
- At least three defective tires

In previous years 6% of tires have had some defect. Based on the following data, test whether we are sampling from a population with a binomial distribution with n = 10, p = 0.06. Use $\alpha = 0.05$

Number of defective tires (out of 10)	0	1	2	≥ 3
Number of samples	125	55	15	5

Example: The number of sales of TV sets per day for 100 randomly selected days is represented below

| Number of sets sold in a day	0	1	2	3	4	5	6	7	≥ 8
Number of days	1	6	19	21	16	12	12	7	6

Test at $\alpha = 0.10$ whether the sales are poisson distributed.

Testing for Normality

Example: In order to test whether a population is normal with $\mu = 50$ and $\sigma = 10$ a random sample was taken. Use the sample data to test the claim at $\alpha = 0.05$.

Class boundaries	Observed frequencies
$27.95 \leq x < 34.95$	30
$34.95 \leq x < 41.95$	60
$41.95 \leq x < 48.95$	120
$48.95 \leq x < 55.95$	150
$55.95 \leq x < 62.95$	90
$62.95 \leq x < 69.95$	30
$69.95 \leq x < 76.95$	10

Notes: <u>Testing for Normality</u>

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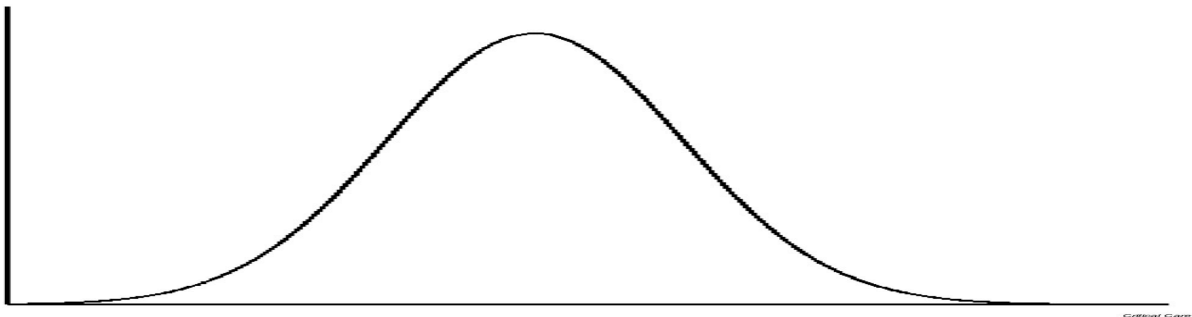
These values partition the area into ten equal parts of 0.1.

Example: It is reasonable, at $\alpha = 0.05$, to assume the random sample below comes from a normal population?

46	25	40	33	41	37	39	44	47	43
39	44	46	42	41	46	41	48	36	38
22	42	41	41	47	43	40	41	35	39
36	44	45	37	39	28	45	42	37	39
32	45	34	43	42	39	35	42	50	36
43	42	45	41	30	34	31	54	43	46