

6.4 Normal Probability Plots

GOALS:

1. Determine if a distribution is normal or approximately normal.
2. Construct a Normal Probability Plot to assess normality.
3. Use the calculator for a Normal Probability Plot.
4. Assess normality by comparing the Normal Probability Plot to a straight line.

Study 6.4 # (113-121, 125, 129)

Class Notes: Prof. G. Battaly, Westchester Community College, NY

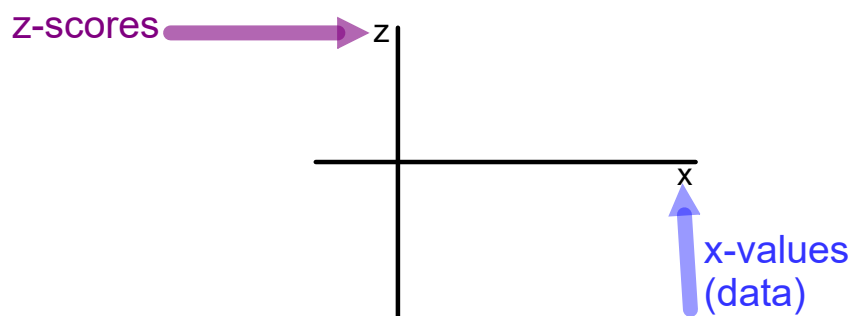
[Statistics Home Page](#)

[Class Notes](#)

6.4 Normal Probability Plots

Need to determine if distribution is normal:
Use histogram to look for bell shape
BUT, difficult to assess for small sample

Use Normal Probability Plot



Class Notes: Prof. G. Battaly, Westchester Community College, NY

[Statistics Home Page](#)

[Class Notes](#)

6.4 Normal Probability Plots

Normal Probability Plots

1. Sequence data.
2. Assign z-scores to each item of data, as if n.d. using Table III, sample size, n
3. Plot with z as vertical axis.
4. If distribution is normal, will be ~ straight line
5. If not normal, not straight line.

Class Notes: Prof. G. Battaly, Westchester Community College, NY

[Statistics Home Page](#)

[Class Notes](#)


6.4 Normal Probability Plots

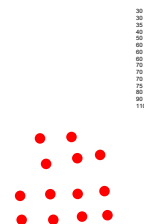
Cell phones: monthly cost in \$; n=15

40	110	90	30	70
70	30	60	60	50
60	70	35	80	75

Class Notes: Prof. G. Battaly, Westchester Community College, NY

[Statistics Home Page](#)

[Class Notes](#)



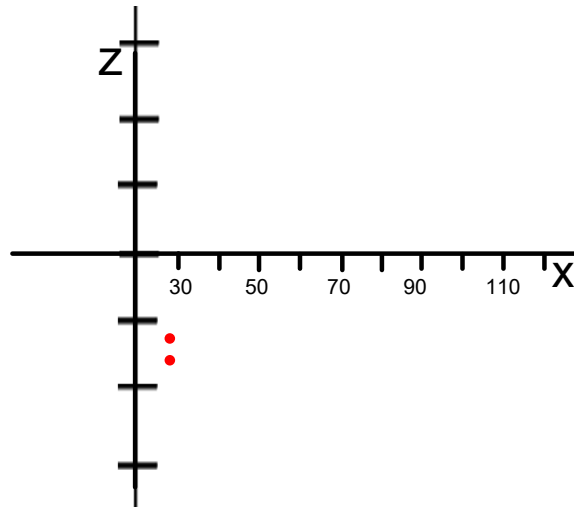
6.4 Normal Probability Plots

Cell phones: monthly cost in \$; n=15

z-scores: Table III

40	110	90	30	70
70	30	60	60	50
60	70	35	80	75

30	-1.74
30	-1.24
35	-0.94
40	-0.71
50	-0.51
60	-0.33
60	-0.16
60	0.0
70	0.16
70	0.33
70	0.51
75	0.71
80	0.94
90	1.24
110	1.74



Class Notes: Prof. G. Battaly, Westchester Community College, NY

[Statistics Home Page](#)

[Class Notes](#)

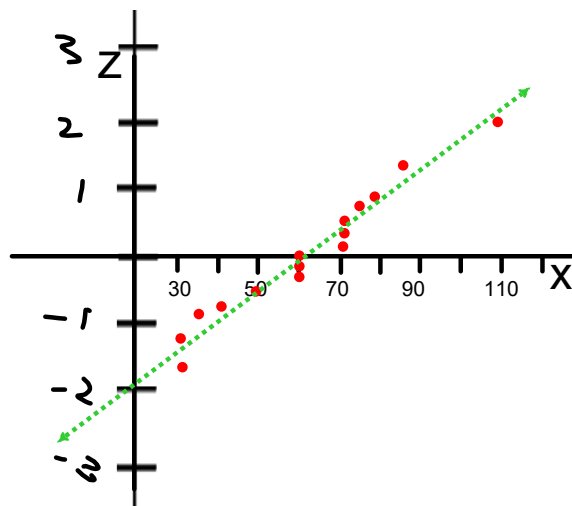
6.4 Normal Probability Plots

Cell phones: monthly cost in \$; n=15

z-scores: Table III

40	110	90	30	70
70	30	60	60	50
60	70	35	80	75

30	-1.74
30	-1.24
35	-0.94
40	-0.71
50	-0.51
60	-0.33
60	-0.16
60	0
70	0.16
70	0.33
70	0.51
75	0.71
80	0.94
90	1.24
110	1.74



//

Class Notes: Prof. G. Battaly, Westchester Community College, NY

[Statistics Home Page](#)

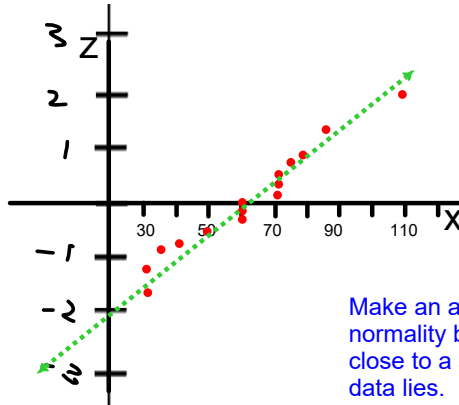
[Class Notes](#)

6.4 Normal Probability Plots

Cell phones: monthly cost in \$; n=15
z-scores: Table III

40	110	90	30	70
70	30	60	60	50
60	70	35	80	75

30	-1.74
30	-1.24
35	-0.94
40	-0.71
50	-0.51
60	-0.33
60	-0.16
60	0
70	0.16
70	0.33
70	0.51
75	0.71
80	0.94
90	1.24
110	1.74



Make an assessment of normality by judging how close to a straight line the data lies. //

Class Notes: Prof. G. Battaly, Westchester Community College, NY

[Statistics Home Page](#)

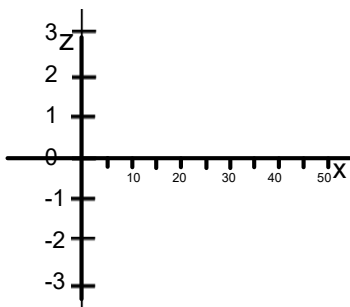
[Class Notes](#)

6.4 Normal Probability Plots

Peregrine Falcons at Hook Mt, 2001 to 2015
Is this data normally distributed?

34
23
29
14
31
17
13
18
36
43
32
39
39
32
28

[web page](#)



//

Class Notes: Prof. G. Battaly, Westchester Community College, NY

[Statistics Home Page](#)

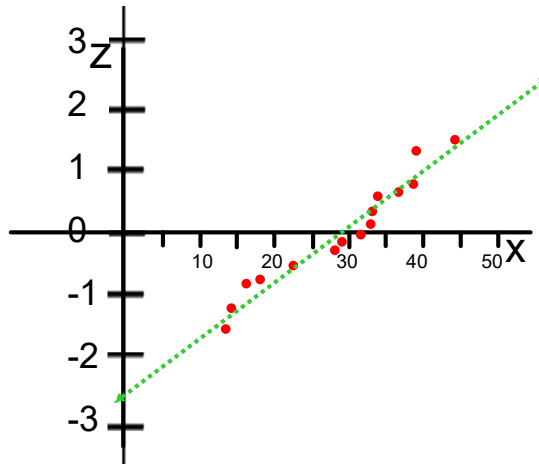
[Class Notes](#)

6.4 Normal Probability Plots

Peregrine Falcons at Hook Mt, 2001 to 2015

z-scores: Table III

34	13	-1.74
23	14	-1.24
29	17	-0.94
14	18	-0.71
31	23	-0.51
17	28	-0.33
13	29	-0.16
18	31	0
36	32	0.16
43	32	0.33
32	34	0.51
39	36	0.71
39	39	0.94
32	39	1.24
28	43	1.74



Class Notes: Prof. G. Battaly, Westchester Community College, NY

[Statistics Home Page](#)

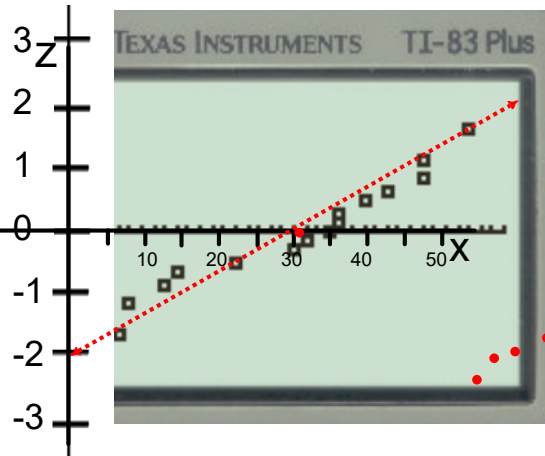
[Class Notes](#)

6.4 Normal Probability Plots

Peregrine Falcons at Hook Mt, 2001 to 2015

z-scores: **Table III, Calculator Values**

34	13	-1.74	-1.83
23	14	-1.24	-1.28
29	17	-0.94	-0.97
14	18	-0.71	-0.73
31	23	-0.51	-0.52
17	28	-0.33	-0.34
13	29	-0.16	-0.17
18	31	0	0
36	32	0.16	0.17
43	32	0.33	0.34
32	34	0.51	0.52
39	36	0.71	0.73
39	39	0.94	0.97
32	39	1.24	1.28
28	43	1.74	1.83



Use trace to get values from calculator.

Class Notes: Prof. G. Battaly, Westchester Community College, NY

[Statistics Home Page](#)

[Class Notes](#)