

Below, I have used PROC UNIVARIATE to generate descriptive statistics for test 1.

The SAS System

The UNIVARIATE Procedure

Variable: PERCENT

Moments

N	228	Sum Weights	228
Mean	71.5179718	Sum Observations	16306.0976
Std Deviation	17.4159032	Variance	303.313685
Skewness	-0.6314783	Kurtosis	-0.0116087
Uncorrected SS	1235031.23	Corrected SS	68852.2065
Coeff Variation	24.3517857	Std Error Mean	1.15339637

Basic Statistical Measures

Location		Variability	
Mean	71.51797	Std Deviation	17.41590
Median	73.17073	Variance	303.31369
Mode	85.36585	Range	82.92683
		Interquartile Range	24.39024

Tests for Location: Mu0=0

Test	Statistic		p Value	
Student's t	t	62.00641	Pr > t 	<.0001
Sign	M	114	Pr >= M 	<.0001
Signed Rank	S	13053	Pr >= S 	<.0001

Quantiles (Definition 5)

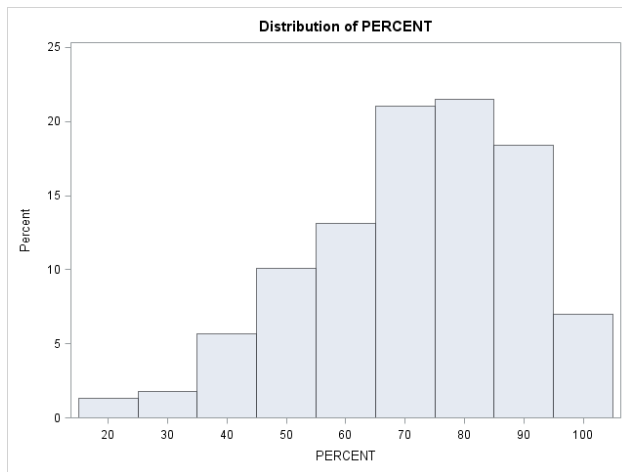
Quantile	Estimate
100% Max	100.0000
99%	100.0000
95%	95.1220
90%	92.6829
75% Q3	85.3659
50% Median	73.1707
25% Q1	60.9756
10%	46.3415
5%	41.4634
1%	23.1707
0% Min	17.0732

Extreme Observations

Lowest		Highest	
Value	Obs	Value	Obs
17.0732	72	98.7805	133
18.2927	17	98.7805	198
23.1707	11	100.0000	59
25.6098	227	100.0000	114
32.9268	62	100.0000	152

The UNIVARIATE Procedure

Below is a histogram of the distribution of grades as percentages



Below I used the angular transformation. That is convert each grade to a proportion. Take the square root of the proportion and then the arcsine of those. Note how this transformation tends to produce a normal (bell-shaped distribution of grades).

