# Lab #6: Measures of Relative Standing

**1)** Using the following grouped frequency frequency distribution,
**a.** What % of the distribution fell at or below a score of 36? 24.5?
**b.** What is the score at which 22% fell at or below? 84%?

| Interval | Exact Limits | Midpnt | f | p | Cf | C% |
|---|---|---|---|---|---|---|
| 48-50 | 47.5-50.5 | 49 | 5 | .12 | N=40 | 100 |
| 45-47 | 44.5-47.5 | 46 | 4 | .10 | 35 | 88 |
| 42-44 | 41.5-44.5 | 43 | 2 | .05 | 31 | 78 |
| 39-41 | 38.5-41.5 | 40 | 3 | .08 | 29 | 72 |
| 36-38 | 35.5-38.5 | 37 | 3 | .08 | 26 | 65 |
| 33-35 | 32.5-35.5 | 34 | 2 | .05 | 23 | 58 |
| 30-32 | 29.5-32.5 | 31 | 3 | .08 | 21 | 52 |
| 27-29 | 26.5-29.5 | 28 | 6 | .15 | 18 | 45 |
| 24-26 | 23.5-26.5 | 25 | 5 | .12 | 12 | 30 |
| 21-23 | 20.5-23.5 | 22 | 4 | .10 | 7 | 18 |
| 18-20 | 17.5-20.5 | 19 | 3 | .08 | 3 | 8 |
| | | | $\Sigma f=40$ | p=1.01 | | |

**2)** Use the conversion formula to determine which test you did better on, relative to the rest of the class? In other words, transform the PSY110 score to the PSY290 scale.

| TEST | X | $\bar{X}$ | s |
|---|---|---|---|
| PSY110 | 82 | 73 | 4 |
| PSY290 | 92 | 78 | 8 |
| Transformed PSY110 distribution | ? | 78 | 8 |

**3)** Find z scores for the test scores above to determine which test you did better on, relative to the rest of the class.

**4)** **a.** What is kurtosis and what kinds of kurtosis are there for normal distributions?
**b.** Which type of kurtosis would give you the largest standard deviation?

**5)** In a normal distribution,
**a.** What is the % of scores falling between a z of -1.0 and a z of 0.8?
**b.** What % scored above a z score of 0.8?

**6)** A scale measuring happiness has a $\mu = 200$ & $\sigma = 25$. One thousand people are chosen randomly and their happiness is determined using this happiness scale.
**a.** What % of the population has a happiness score between 160 and 180? How many people will score between 160 and 180?
**b.** What is the percentile rank for a score of 210 on the scale of happiness?
**c.** What score has 80% of the distribution falling below it?