

### Z-Fun (Practice Problems)

- 1) What is the percentage area between a z-score of .43 and a z-score of 1.33?
2. What is the percentage area between a z-score of -1.25 and a z-score of .36?
3. In a normal distribution of test scores with a mean equal to 57 and a standard deviation equal to 6.5, what is the percentile rank associated with a score of 65?
4. The scores on a personality test are normally distributed with  $\mu = 250$  and  $\sigma = 30$ . What percentage of people taking the test can be expected to score between 229 and 325?

The average man in an industrialized country lives  $\mu = 70$  and  $\sigma = 6.3$ . Use this information to answer problems 5-8.

5. What percentage of men live 75 years or longer?
6. What percentage of men live between 65 and 75 years?
7. What percentage of men live 65 years or less?
8. What percentage of men live between 55 and 60 years?

9. 95% of the men will live between the ages of \_\_\_\_\_ and \_\_\_\_\_ years (i.e., find the raw values that mark the middle 95% of the distribution of ages).

10. In a distribution of scores with a mean of 1500 and a standard deviation of 250, what raw score corresponds with the 67<sup>th</sup> percentile?

Questions 11-13 refer to a distribution with  $\mu = 60$  and  $\sigma = 4.3$ .

11. The raw score corresponding to a z-score of 0.00 is \_\_\_\_\_.

12. The raw score corresponding to a z-score of -1.51 is \_\_\_\_\_.

13. the z-score corresponding to a raw score of 68.7 is \_\_\_\_\_.

14. Men in third-world countries have a life expectancy of  $\mu = 60$  and  $\sigma = 4.3$ . Men in industrialized countries have a life expectancy of  $\mu = 70$  and  $\sigma = 6.3$ . If a man in a third-world country lives to be 65 and a man in an industrialized country lives to be 72, who lived longer relative to their age distribution?

In a distribution with a mean of 50 and a standard deviation of 5:

15. What raw score corresponds with the 14<sup>th</sup> percentile?

16. What z-score cuts off the top 10% of this (or any) distribution?

17. What raw score cuts off the top 10% of this distribution?

18. What raw scores mark the middle 60% of this distribution?

### ANSWERS

1. 24.18%

2. 53.50%

3. 89th

4. 75.18

5. 21.48%

6. 57.04%

7. 21.48%

8. 4.84%

9. 57.65 to 82.35

10. 1610

11. 60

12. 53.51

13. 2.02

14. Third-world man lived longer for his distribution ( $z = 1.16$ ) than the other man ( $z = .31$ ).

15. 44.6

16. 1.28

17. 56.4