Name:

## **Elementary Statistics**

The graphs below depict the standard normal distribution of bone density scores with a mean of 0 and a standard deviation of 1. Use table A-2 in your reference packet to find the given area of the shaded regions for questions 1-3:



For questions 4-12, assume that a randomly selected subject is given a bone density test. Those test scores are normally distributed with a mean of 0 and a standard deviation of 1. For each question, <u>sketch a graph</u> and <u>find the probability of the given scores</u> using table A-2 in your reference packet.

4. Less than 1.96

5. Greater than 1.82

6. Greater than -0.84

7. Between 1.23 and 2.37

8. Between -1.93 and -0.45

9. Between -0.62 and 1.78

10. Less than 3.65

11. Greater than 0

12. Greater than -3.80

For questions 13-14, assume that a randomly selected subject is given a bone density test. Bone density tests are normally distributed with a mean of 0 and a standard deviation of 1. In each case, <u>sketch a graph</u>, then <u>find the bone density score</u> corresponding to the given information:

13. Find P<sub>90</sub>, the 90<sup>th</sup> percentile. This is the bone density score separating the bottom 90% from the top 10%.

14. Find P<sub>5</sub>, the 5<sup>th</sup> percentile. This is the bone density score separating the bottom 5% from the top 95%.

## For questions 15-16, find the indicated critical value:

15. z<sub>0.01</sub>

16. *z*<sub>0.03</sub>