**MA 207 Empirical Rule and *z*-Scores Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_ Class time: \_\_\_\_\_**

1. According to one study, the distribution of HDL (good) cholesterol levels for men is approximately bell-shaped with a mean of 46 mg/dL and a standard deviation of 14 mg/dL.

For each part below, sketch a separate bell-shaped curve (be sure to put a scale on the horizontal axis) and shade an appropriate region, then give a numerical answer to the question.

* 1. What is the z-score for a HDL level of  mg/dL? What is the z-score for a HDL level of  mg/dL?

What percent of subjects have HDL levels between 32 and 60?

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What percent of subjects have HDL levels between 18 and 74?

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What percent of subjects have HDL levels between 4 and 88?

For each part below, making a sketch is optional, but you should know how to do it. What percent of subjects have HDL levels that are…

* 1. below 46? (Equivalently, in what percentile is a subject with an HDL of 46?)
  2. between 46 and 60?
  3. below 60? (Equivalently, in what percentile is a subject with an HDL of 60?)
  4. above 60?
  5. below 32 or above 60?
  6. below 32? (Equivalently, in what percentile is a subject with an HDL of 32?)
  7. above 32?
  8. equal to 32?
  9. between 18 and 46?
  10. above 46?
  11. above 18?
  12. below 18 or above 74?
  13. above 74?
  14. below 4 or above 88?
  15. below 4?
  16. below 74?
  17. between 4 and 74?
  18. between 32 and 74?
  19. What is the *z-*score for a man with an HDL level of 
  20. What is the HDL level  of a man with a *z*-score of  Include units in your answer.
  21. In what percentile is a man with HDL level of 
  22. What is the HDL level  of a man in the 84th percentile? Include units in your answer.