Statistics & Probability **Final Review: Normal Distribution & z-scores**

Name_____ **Date**_____ **Period**_____

In a normal distribution, what percent of the values lie:

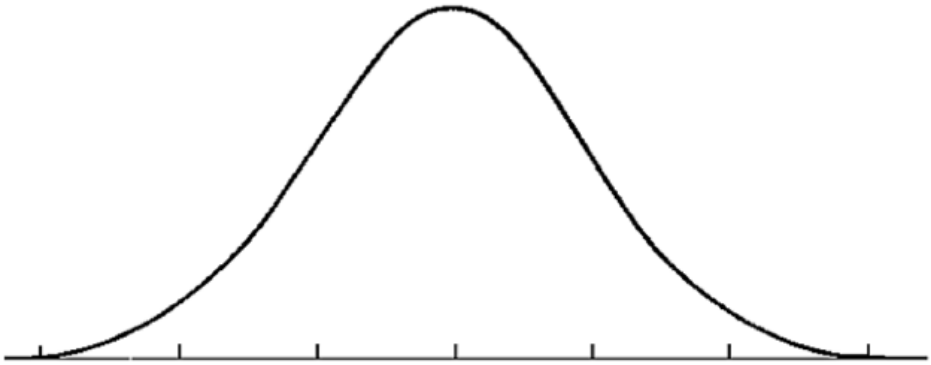
1. below the mean?_____ **2. above the mean?**_____

3. within approximately <u>one</u> standard deviation of the mean?_____

4. within approximately <u>two</u> standard deviation of the mean?_____

5. within approximately <u>three</u> standard deviation of the mean?_____

6. 2000 freshmen at State University took a biology test. The scores were normally distributed with a mean of 70 and a standard deviation of 5. Label the mean and three standard deviations from the mean.



7. What percentage of the scores are between 65 and 75?_____

8. What percentage of the scores are between 60 and 70?_____

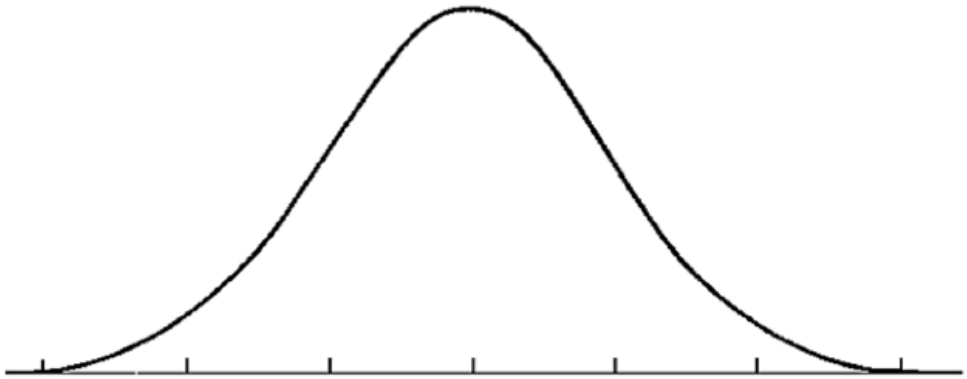
9. What percentage of the scores are less than a score of 55?_____

10. What percentage of the scores are greater than a score of 80?_____

11. Approximately how many biology students scored between 60 and 70?_____

12. Approximately how many biology students scored between 55 and 60?_____

13. 500 juniors at Central High School took the ACT last year. The scores were normally distributed with a mean of 24 and a standard deviation of 4. Label the mean and three standard deviations from the mean.



14. What percentage of the scores are between 20 and 28?_____

15. What percentage of the scores are between 16 and 32?_____

16. What percentage of the scores are between 16 and 28?_____

17. What percentage of the scores are less than a score of 15?_____

18. What percentage of the scores are greater than a score of 24?_____

19. Approximately how many juniors scored between 24 and 28?_____

20. Approximately how many juniors scored between 20 and 28?_____

21. Approximately how many juniors scored between 24 and 32?_____

22. Approximately how many juniors scored between 16 and 20?_____

23. Approximately how many juniors scored higher than 32?_____

Adult Height (inches)		
	Male	Female
MEAN	68.8	63.6
Standard Deviation	2.65	2.5

Adult Shoulder Width (inches)		
	Male	Female
MEAN	17.7	16.0
Standard Deviation	0.85	0.85

24. How tall is a male with a z-score of 1.6? _____

25. If a female is 5'5" tall and a male has a z-score of 0.3, who is taller? _____

26. Jimbo (a male) has a standardized value of -1.2 for shoulder width. Can he walk between two poles that are set 16.5 inches apart without turning sideways?

_____

27. If this data is normally distributed, what is the range of heights that represents 68% of all the men?

_____

28. 95% of male badminton players are in the <u>top</u> 16% of height. This means that 95% of mal badminton players are at least how tall?

_____

29. How tall is Jenny (a female) if 2.5% of women are shorter than her? _____