Problems 1–2: The distribution of the height of U.S. adult males is approximately normal with a mean of 69.5 inches and standard deviation of 2.5 inches.

1. You collect data from an SRS of 300 U.S. adult males. The mean height of your sample is 68 inches.
    A. Find the margin of error for this sample.

    B. Calculate the 95% confidence interval for the mean height of U.S. adult males.

    C. Does your sample provide strong evidence that the mean height of U.S. adult males has changed?

2. You repeat the study with a different SRS of 75 U.S. adult males. The mean height of this sample is 70 in.
    A. Find the margin of error for this sample.

    B. Calculate the 95% confidence interval for the mean height of U.S. adult males.

    C. Does this sample provide strong evidence that the mean height of U.S. adult males has changed?

3. Explain what 95% confidence means.

Problems 4–6: The distribution of the weight of widgets is approximately normal with a mean of 20 pounds and standard deviation of 2.3 pounds.

Use the 68–95–99.7 rule to fill in the blanks and percentages on the normal curve and answer the questions that follow.

4. a. What percent of widgets weigh more than 15.4 pounds?

b. What percent of widgets weigh between 17.7 pounds and 26.9 pounds?

c. 2.5% of widgets are what weight or more?
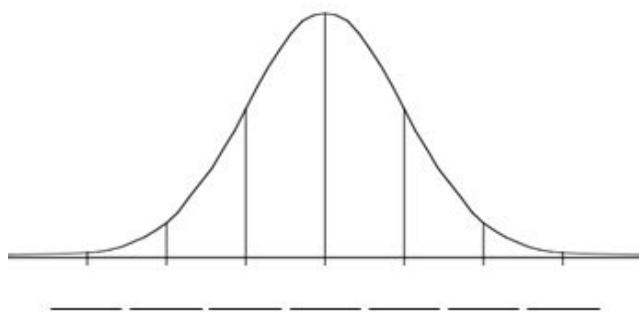
5. a. What is the probability that a randomly selected widget weighs more than 21 pounds?   (Use Table A)

b. What is the probability that a randomly selected widget weighs less than 15 pounds?

6. Use your calculator to randomly select 15 integers from 5 to 25. (numbers may be repeated)

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Mean:

Median:

Mode:

Standard Deviation:

Variance:

What are the numbers that are within 1 standard deviation of the mean

7. Draw the density curve. Be sure to label the axes.

If a random number is chosen in the interval from 1 to 5, what is the probability that the number is between 3.1 and 4.6?

What is the probability that the number will be greater than 3.7?

8. Draw the density curve. Be sure to label the axes.

If a random number is chosen in the interval from 3 to 8, what is the probability that the number is between 3.1 and 4.6?

What is the probability that the number will be greater than 4.7?

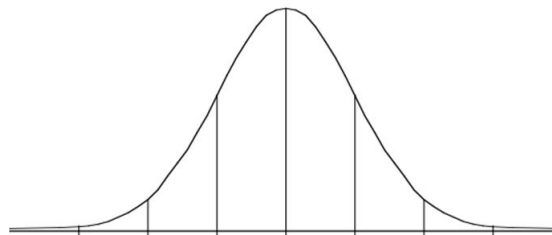9. Find the value of the sixth observation so that the mean is 31.
       23 25 38 34 27 _____

Find the Median:

Standard Deviation:

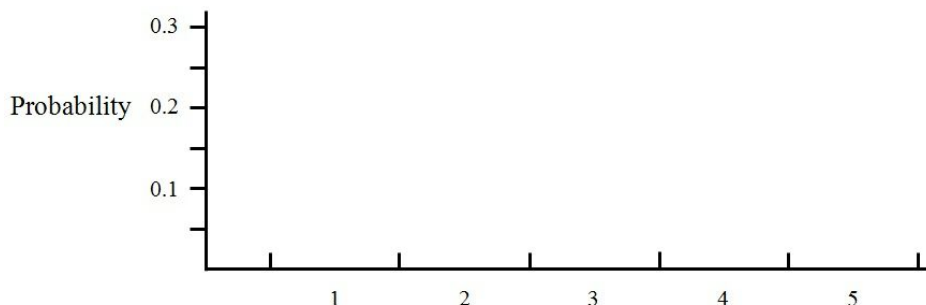Label the bell curve with the appropriate cutoffs for the mean and each standard deviation.

 If this data is normally distributed, what percentage of scores are between 25.2 and 41.1?

Problems 10-11. The table below represents the percent chance of getting a given number on a spinner.

1	2	3	4	5
15%	23%	32%	8%	22%

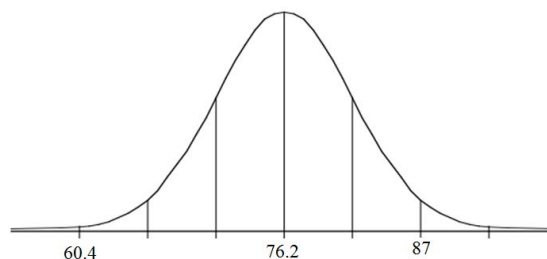10. Draw a probability histogram for this situation.

11. What is the probability that the spinner lands on an even number?

12.   The normal curve for a set of data is shown.

A. What is the mean of the data?

B. Find the standard deviation.

C. Eighty-four percent of the scores are above a _____.

60.4   76.2   87

14.   For data sets with a normal distribution, what percentage of the data falls within 3 standard deviations of the mean?
    A. 68%
    B. 95%
    C. 97%
    D. 99.7%

15.   IQ test scores are normally distributed with a mean of 99 and a standard deviation of 11. An individual's IQ score is found to be 109. Find the z-score corresponding to this value.
    A. 0.91   B 1.1   C) -1.10   D) -.91

This person's IQ is above _____% of the population.

16.   Of the 26 members of student council, 7 are boys. In order to choose a Prom committee of 6 student council members, Mr. Reeves wants to make sure girls and boys on the committee are represented in proportion to the council. He randomly selects 2 of the boys and 4 of the girls to serve on the Prom committee. What kind of sampling method did he use?
    A. Simple Random Sample (SRS)
    B. Self Selected Sample
    C. Convenience Sample
    D. Stratified Random Sample
    E. Systematic Sample

17. An airline knows from experience that the distribution of the number of suitcases that get lost each week on a certain route is approximately normal with a mean of 15.5 and a standard deviation of 3.6. Sixty-eight percent of the time between _____ and _____ bags are lost.

Using the z-score find the probability that less than 10 bags will be lost in a week?

Using the z-score find the probability that more than 18 bags will be lost in a week?

18. Use the test scores to answer the questions.

55 81 65 73 88 83 74 88 91 79 86 67 90 71 95 91 78 74 94 90

What percentile is a score of 78?

What score is in the 70th percentile?

A radar unit is used to measure speeds of cars on a highway. The speeds are normally distributed with a mean of 90 km/hr and a standard deviation of 10 km/hr.

Fill in the percents and the standard deviations on the normal curve below.
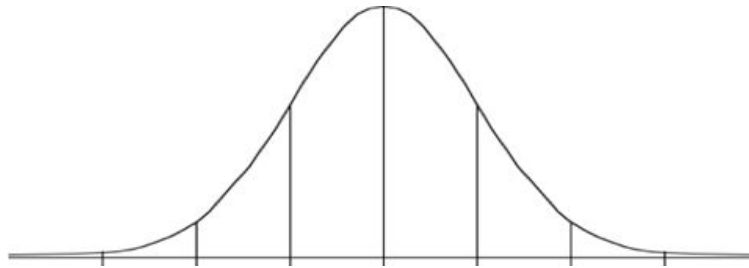
19.a What is the probability that speed of a random car on the highway will have a speed between 60 and 100 km/hr?

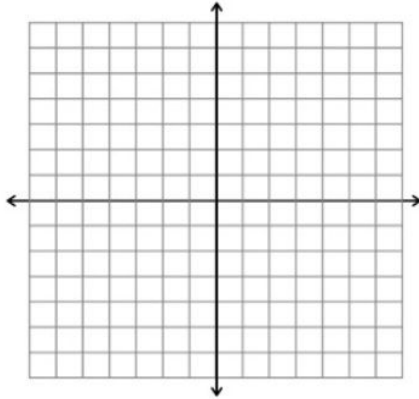19.b. 16% of the cars will travel at what speed or higher?

20. Use a z-score and Table A to answer this question. *What percent of cars will travel faster than 98 km/hr?*

A radar unit is used to measure speeds of cars on a highway. The speeds are normally distributed with a mean of 90 km/hr and a standard deviation of 10 km/hr. You conduct your own SRS of 120 cars on the highway. The mean speed of your sample is 86 km/hr.

21. Find the margin of error for this sample.

Calculate the 95% confidence interval for the mean speed of cars on the highway.

Does your sample provide strong evidence that the mean speed of cars on the highway has changed from 90 km/hr?

22. Miss Smithson wants to know how students feel about the new Secondary Math 3 curriculum. She asks the SM3 teachers to send out a link to a survey and ask students to go online to take the survey if they have time. What kind of sample is this?
    A. Simple Random Sample (SRS)
    B. Self Selected Sample
    C. Convenience Sample
    D. Stratified Random Sample
    E. Systematic Sample
	23. Mr Anderson wants to know if students feel the attendance policy is fair. He stands outside the school at 7:00AM and asks 100 students for their opinions. What kind of sample is this?
	    A. Simple Random Sample (SRS)
	    B. Self Selected Sample
	    C. Convenience Sample
	    D. Stratified Random Sample
	    E. Systematic Sample

24. Mrs Sheridan is trying to gather data on the ethnic population at school. She randomly selects 9 non-hispanic and 2 hispanic students to take a survey. What kind of sample is this?
    A. Simple Random Sample (SRS)
    B. Self Selected Sample
    C. Convenience Sample
    D. Stratified Random Sample
    E. Systematic Sample
	25. Ms. Payne wants her students to do a project and gather data on the size of families in Utah County. Which is the most appropriate form of data collection?
	    A. Controlled Experiment
	    B. Observational Study
	    C. Survey

26. Graph $f(x) = \frac{-5+4x}{x-2}$ VA: HA: x-Intercept: y-Intercept: Transformation Form:	
27. Use a graphing utility to find any integer zeros, and then use synthetic division to find the remaining zeros. List all the zeros. $f(x) = x^4 + x^3 - 5x^2 + x - 6$ Zeros: Product of linear Factors: Find f(-4)=	28. Convert to Quotient Form: $f(x) = \frac{6}{x-5} - 4$