

**Show all your work! Partial credit is based on work shown!**

6pts

1. What kind of graph (a **bar graph**, a **circle graph**, or a **line graph**) would be **best suited** for each of the following situations:

- You want to show turkey production for the three major turkey producing states. \_\_\_\_\_
- You want to show the proportion of a middle-school's student population that are 6<sup>th</sup> graders, 7<sup>th</sup> graders and 8<sup>th</sup> graders. \_\_\_\_\_
- You want to show the monthly sales for a business over the last two years to determine any trends. \_\_\_\_\_

2pts

2. If a portion of a circle graph is to represent 25%, what will be the measure of the corresponding central angle?

21pts

3. For the following heights of children, in centimeters,  
118, 120, 121, 122, 128, 128, 132, 134, 140, 142, 146, 155, 160

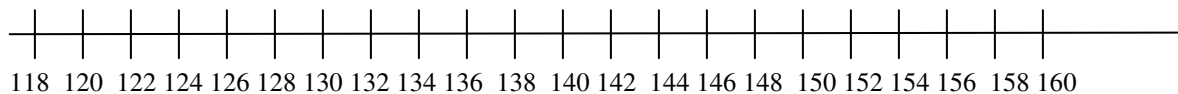
find the: a. mode

b. mean

c. median

d. lower quartile and upper quartile

e. construct a box and whisker plot, using the scale below.



f. Make a stem and leaf plot for the heights.

g. Which gives a better analysis of the data, the box and whisker plot or the stem and leaf plot? \_\_\_\_\_ Explain:

8pts

4. A county mathematics test for all third-graders had a normal distribution with a mean of 74 and a standard deviation of 11.

a. Show a sketch of a normal distribution with the mean score and other scores, represented by the standard deviations, labeled.

b. What percentage of the third-graders scored between 52 and 96?

c. At what percentile is a student who scored 63?

5. Describe two ways you could change a bar graph that would distort the overall impression of the graph but still use the original data. (Also explain how this change distorts the impression given.)

8pts

6. True / false questions. If false, correct the statement or explain why it is false.

\_\_\_\_\_ a. If you toss two dice and then flip a coin, there are 38 possible outcomes.

\_\_\_\_\_ b. The words tab and bat are the same combination of letters.

\_\_\_\_\_ c. A z-score is the number of standard deviations away from the mean in a normal distribution.

\_\_\_\_\_ d. The experimental probability and theoretical probability of an event are usually the same.

4pts.

7. Suppose that the odds of a certain bill's passing through a state senate are 7 to 5,

a. what are the odds of the bill's not passing?      b. what is the probability that the bill will pass?

6pts

8. Suppose an insurance company has broken down yearly automobile claims for drivers from age 16 through 21, as shown in the table below. How much should the company charge as its average premium in order to break even on its cost for claims?

Amount of claim

<u>(nearest \$2000)</u>	<u>Probability</u>
0	0.70
\$ 2000	0.15
\$ 4000	0.10
\$ 6000	0.03
\$ 8000	0.01
\$10000	0.01

4pts

9. Jennifer stated that it is best to do a simulation whenever an experiment is very complex or requires a large number of trials. Do you agree? \_\_\_\_\_ Explain:

10. A bag contains 1 red balls, 6 blue balls, and 4 white balls. One ball is drawn at random and then a second ball is drawn without replacing the first ball.

a. On the back of the previous page, draw a **probability tree diagram** to illustrate this and **list all the different possible outcomes.**

b. Find the following probabilities:

P (one red ball and one white ball)

P (both balls are white)

P (two balls of the same color)

6pts

11. Show how the Fundamental Counting Principle can be used to solve this problem:

Telephone numbers consist of ten digits; the area code followed by 7 digits.

a. How many different telephone numbers can there be that have the area code 910?  
(Assume the first digit cannot be a 0 or a 1.)

b. How many of these phone numbers would begin with 962, following the area code 910?

c. What is the probability of getting one of these phone numbers that begin 910-962- \_\_\_\_?

6pts

12. If a team of six players must be chosen from 5 boys and 4 girls, how many teams can be made if

a. there are no restrictions?

b. there must be 3 boys and 3 girls?

6pts

13. Suppose that there are 12 first-class seats on an airplane. How many different ways are there to seat

a. 12 passengers?

b. 7 passengers?