

12 Chapter 12 Test, Form 2C

Assessment

1. **WRESTLING** A wrestling coach divides athletes at tryouts based on weight. He then randomly selects 3 athletes in a weight class. Identify the sample, and suggest a population from which it was selected. Then classify the type of data collection used.

the 3 athletes chosen; all athletes in the weight class; stratified

2. **SHOPPING** A poll of 60 people at a mall asks, "What is your favorite clothes store?" Is the sample biased or unbiased? If biased, explain your reasoning.

Biased because they probably favor clothes at that mall

3. **SALARIES** A stratified random sample of 20 engineers is selected from all programming companies in the state. The median salary of the 20 engineers is calculated. Identify the sample and the population. Then describe the sample statistic and the population parameter.

the 20 engineers selected; all engineers working at programming companies statewide; median salary of the sample; median salary of engineers working at programming companies statewide

4. **SCIENCE** A scientist finds the volumes of some liquids in test tubes: {44, 53, 47, 49, 42}. Find the mean, ~~mean absolute deviation, variance~~, and standard deviation.

Mean	St. Dev
47;	≈3.85

5. A volleyball team has 6 players. How many different teams can be formed from 12 people if position doesn't matter?

924

6. Ten people are riding horses. If the riders must stay in single file, how many ways can the first 4 positions be filled?

5040

There are 12 orange, 14 yellow, and 15 white golfballs in the bottom of a golf bag. Find each probability.

0.11 = 11%

7. randomly selecting 2 yellow golfballs without replacement

8. randomly selecting an orange or a white golfball

0.659 = 65.9%

9. Use a graphing calculator to construct a box-and-whisker for the data, and use it to determine the shape of the distribution.
{98, 97, 101, 100, 88, 76, 51, 39, 93, 91, 92, 85, 72}

negatively skewed

10. Describe the center and spread of the data using either the mean and standard deviation or the five-number summary. Justify your choice by constructing a histogram for the data. {8, 9, 8, 8, 7, 9, 10, 9, 8, 14, 16, 19}

positively skewed;
min: 7; Q1: 8; med: 9;
Q3: 12; max: 19

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11. WORK The hours worked each week this year by two employees are shown. Compare the data sets using either the means and standard deviations or the five-number summaries. Justify your choice.

Richard
18, 22, 25, 23, 25, 20, 27, 17, 22, 23, 21

Monique
22, 18, 26, 22, 29, 15, 9, 34, 38, 8, 22

The owner of a barber shop asked customers how many haircuts they received in a 3-month period. The results are shown in the table.

12. Find the probability that a randomly-chosen customer had 3 haircuts in the 3-month period.

Number of Haircuts	Number of Customers
1	14
2	20
3	45
4	33

13. Find the probability that a randomly-chosen customer had fewer than 3 haircuts in the 3-month period.

A teacher recently gave her 50 algebra students a 5-question quiz. The table shows the number of students who answered each question correctly.

14. Based on the data, what is the probability that a student from this class answered Question 3 correctly?

Question Number	Number Correct
1	45
2	15
3	32
4	40
5	29

15. Using the data, how many of the 120 algebra students at the school who are taught algebra by other teachers would you expect to answer Question 3 correctly?

16. You draw a card from a deck.
P(seven or queen)
Mutually exclusive or not and probability.

The distributions are symmetric. Richard's mean hours is about 22.1 with a standard deviation of about 2.87. Monique's mean is also about 22.1 with a standard deviation of about 9.02. They work about the same per week, but Richard's weekly hours are more consistent.

11. _____
12. $\frac{45}{112}$ 40.2%
13. $\frac{17}{56}$ 30.4%

14. $\frac{16}{25}$ 64%
15. 77
16.
.
.
.
Mutually exclusive
 $\frac{8}{52} = 15\%$

Bonus When can the number of permutations and combinations of n objects taken r at a time be equal?

Sample answer:
B: when $r = 1$