

Session 4

Statistics and Probability Skills Checklist

1. Find average or weighted average

To determine a student's overall test score for the semester, Ms. Lopez throws out the lowest test score and takes the average of the remaining test scores. Victor earned the following test scores in Ms. Lopez's class this semester: 62, 78, 83, 84, and 93. What overall test score did Victor earn in Ms. Lopez's class this semester?

- A. 67.6
- B. 80.0
- C. 83.0
- D. 83.5
- E. 84.5

2. Find missing value given an average

Tom has taken 5 of the 8 equally weighted tests in his U.S. History class this semester, and he has an average score of exactly 78.0 points. How many points does he need to earn on the 6th test to bring his average score up to exactly 80.0 points?

- A. 90
- B. 88
- C. 82
- D. 80
- E. 79

3. Use data from a table, graph, or chart to answer questions

The table below shows the price of different quantities of standard-sized lemons at Joe's Fruit Stand. What is the least amount of money needed to purchase exactly 20 standard-sized lemons if the bags must be sold intact and there is no tax charged for lemons?

Number of lemons:	1	bag of 6	bag of 12
Total price:	\$0.30	\$1.20	\$2.10

- A. \$3.60
- B. \$3.90
- C. \$4.20
- D. \$4.50
- E. \$6.00

4. Basic probability of independent events and their complements

A bag contains 6 red marbles, 5 yellow marbles, and 7 green marbles. How many additional red marbles must be added to the 18 marbles already in the bag so that the probability of randomly drawing a red marble is $\frac{3}{5}$?

- F. 12
- G. 16
- H. 18
- J. 24
- K. 36

5. Compute probabilities of multiple events

All 100 seniors at City High School who are enrolled in either calculus, statistics, or both. If 75 seniors are enrolled in calculus and 50 are enrolled in statistics, what is the probability that a randomly chosen senior is enrolled in both calculus and statistics?

- F. $\frac{1}{8}$
- G. $\frac{3}{16}$
- H. $\frac{1}{4}$
- J. $\frac{1}{2}$

K. Cannot be determined from the information given

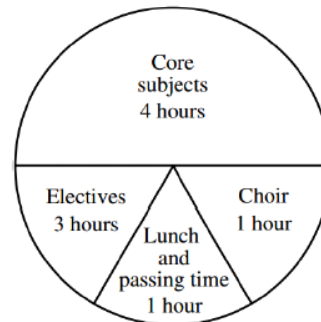
6. Counting problems

How many different positive three-digit integers can be formed if the three digits 3, 4, and 5 must be used in each of the integers?

- F. 6
- G. 8
- H. 12
- J. 15
- K. 24

7. Find measures of sectors in circle graphs

Antwan drew the circle graph below describing his time spent at school in 1 day. His teacher said that the numbers of hours listed were correct, but that the central angle measures for the sectors were not correct. What should be the central angle measure for the Core subjects sector?



- F. 72°
- G. 80°
- H. 160°
- J. 200°
- K. 288°

8. Two-way frequency tables

	For	Against	No opinion	Total
21 - 40	25	20	5	50
41 - 60	20	35	20	75
Over 60	55	15	5	75
Total	100	70	30	200

Frequency Count

A public opinion survey explored the relationship between age and support for increasing the minimum wage. The results are summarized in the two-way table to the right.

In the 21 to 40 age group, what percentage supports increasing the minimum wage?

- (A) 12.5%
- (B) 20%
- (C) 25%
- (D) 50%
- (E) 75%

9. Conditional and joint probabilities

To get a driver's license, an applicant must pass a written test and a driving test. Past records show that 80% of the applicants pass the written test and 60% of those who have passed the written test pass the driving test. Based on these figures, how many applicants in a random group of 1,000 applicants would you expect to get driver's licenses?

- A. 200
- B. 480
- C. 600
- D. 750
- E. 800

10. Find and compare mean, median and mode

What is the difference between the mean and the median of the set {3, 8, 10, 15} ?

- A. 0
- B. 1
- C. 4
- D. 9
- E. 12

Answers

Session 4 Answers

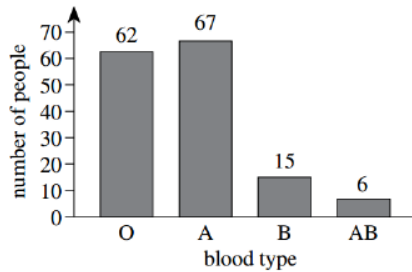
Statistics Teaching Problem Answers

- | | |
|------|-------|
| 1. E | 2. A |
| 3. B | 4. F |
| 5. H | 6. F |
| 7. H | 8. D |
| 9. B | 10. A |

Statistics Practice Problems

1.

The blood types of 150 people were determined for a study as shown in the figure below.



If 1 person from this study is randomly selected, what is the probability that this person has either Type A or Type AB blood?

- A. $\frac{62}{150}$
- B. $\frac{66}{150}$
- C. $\frac{68}{150}$
- D. $\frac{73}{150}$
- E. $\frac{84}{150}$

2.

The monthly fees for single rooms at 5 colleges are \$370, \$310, \$380, \$340, and \$310, respectively. What is the mean of these monthly fees?

- F. \$310
- G. \$340
- H. \$342
- J. \$350
- K. \$380

3.

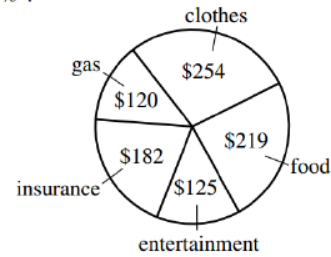
The table below shows the number of cars Jing sold each month last year. What is the median of the data in the table?

Month	Number of cars sold
January	25
February	15
March	22
April	19
May	16
June	13
July	19
August	25
September	26
October	27
November	28
December	29

- F. 13
- G. 16
- H. 19
- J. 20.5
- K. 23.5

4.

Last month, Lucie had total expenditures of \$900. The pie chart below breaks down these expenditures by category. The category in which Lucie's expenditures were greatest is what percent of her total expenditures, to the nearest 1% ?



- A. 24%
- B. 28%
- C. 32%
- D. 34%
- E. 39%

5.

To make a 750-piece jigsaw puzzle more challenging, a puzzle company includes 5 extra pieces in the box along with the 750 pieces, and those 5 extra pieces do not fit anywhere in the puzzle. If you buy such a puzzle box, break the seal on the box, and immediately select 1 piece at random, what is the probability that it will be 1 of the extra pieces?

- A. $\frac{1}{5}$
- B. $\frac{1}{755}$
- C. $\frac{1}{750}$
- D. $\frac{5}{755}$
- E. $\frac{5}{750}$

6.

What is the median of the following 7 scores?

42, 67, 33, 79, 33, 89, 21

- A. 42
- B. 52
- C. 54.5
- D. 56
- E. 79

7.

Only tenth-, eleventh-, and twelfth-grade students attend Washington High School. The ratio of tenth graders to the school's total student population is 86:255, and the ratio of eleventh graders to the school's total student population is 18:51. If 1 student is chosen at random from the entire school, which grade is that student most likely to be in?

- A. Tenth
- B. Eleventh
- C. Twelfth
- D. All grades are equally likely.
- E. Cannot be determined from the given information

8.

Kelly asked 120 students questions about skiing. The results of the poll are shown in the table below.

Question	Yes	No
1. Have you skied either cross-country or downhill?	65	55
2. If you answered Yes to Question 1, did you ski downhill?	28	37
3. If you answered Yes to Question 1, did you ski cross-country?	45	20

After completing the poll, Kelly wondered how many of the students polled had skied both cross-country *and* downhill. How many of the students polled indicated that they had skied both cross-country and downhill?

- A. 73
- B. 65
- C. 47
- D. 18
- E. 8

9.

There are 280 runners registered for a race, and the runners are divided into 4 age categories, as shown in the table below.

Age category:	under 16	16–25	26–35	over 35
Number of runners:	40	76	112	52

The prize committee has 60 prizes to award and wants the prizes to be awarded in proportion to the number of runners registered in each category. How many prizes should be designated for the 26–35 age category?

- F. 15
- G. 17
- H. 24
- J. 36
- K. 40

10.

A poll of 200 registered voters was taken before the election for mayor of Springdale. All 200 voters indicated which 1 of the 4 candidates they would vote for. The results of the poll are given in the table below.

Candidate	Number of voters
Blackcloud	50
Lue	80
Gomez	40
Whitney	30

If the poll is indicative of how the 10,000 registered voters of Springdale will actually vote in the election, which of the following is the best estimate of the number of votes Lue will receive in the election?

- F. 1,500
- G. 2,500
- H. 4,000
- J. 5,000
- K. 8,000

Answers

Statistics Practice Problems Answers

- | | |
|------|-------|
| 1. D | 2. H |
| 3. K | 4. B |
| 5. D | 6. A |
| 7. B | 8. E |
| 9. H | 10. H |