

Math 221: Basic Statistics Exam #1A

Week #6

Name: _____

INSTRUCTIONS: You may use a calculator for this exam and a letter-sized study sheet with information written on a single side. You must show all of your work in order to receive full credit. Read each question carefully. Be certain that you have answered the question that was asked. Remember to set your calculators in single-variable statistics (*Stat x*) mode.

Problem	Points	Score
1	12	
2	12	
3	12	
4	12	
5	12	
6	12	
7	12	
8	12	
	4	
Total	100	

- (1) At a large community college 120 students are randomly selected and asked the distance of their commute to campus. From this group a mean of 9.8 miles is computed. Match the items in Column II with the statistical terms in Column I.

Column I**Column II**

- | | |
|-------------------|--|
| ___ 1. Data (one) | a. The process used to select the 120 students and determine their distance. |
| ___ 2. Data (set) | b. The computed 9.8 miles |
| ___ 3. Experiment | c. All students enrolled at the college |
| ___ 4. Parameter | d. The 120 commute distances |
| ___ 5. Population | e. The 120 students |
| ___ 6. Sample | f. The commute distance for one student |
| ___ 7. Statistic | g. 8 miles distance for one student |
| ___ 8. Variable | h. The mean commute distance for all students |

- (2) Twenty-five snow throwers of a given brand were filled with gasoline (one gallon) and allowed to run until the tank was empty. The time (in minutes) that the snow throwers operated were recorded as follows:

65 70 60 65 67 68 63 62 63 70 72 66 63 66 66
62 70 58 60 60 60 62 67 71 65

Find the mean, median, mode, and midrange for these data.

- (3) A random sample of test scores was taken from a section of an introductory statistics course. Construct a stem-and-leaf display for these data.

56 97 99 64 78 76 45 73 81 51 68 81 81 79 100

- (4) Consider the following sample of size $n = 65$ ordered from smallest to largest:

124 127 128 129 133 134 137 139 141 143 147 148 156 159 163
166 169 170 173 179 199 201 207 210 213 217 219 222 225 228
234 238 244 259 261 262 263 264 266 268 279 280 286 298 299
305 306 307 311 313 320 328 333 345 350 351 361 362 363 364
378 388 390 400 417

- (a) Prepare a five-number summary of this data set.

- (b) Construct a Box-and-Whisker display of the data set.

(5) A particular standardized test has a mean score of 455 with a standard deviation of 112.

(a) A student scored 575 on this test. Determine the student's z -score.

(b) What score has a z -score equal to -0.40?

(6) In a survey, respondents were asked to state their marital status. The following responses were obtained: 17 single (never married), 28 married, 19 divorced, and 5 widowed. Construct a Pareto diagram for this data.

- (7) A survey of 15 doctors and 15 nurses was conducted, and one question was asked related to their smoking habit. The following coding was used: Doctor (D), Nurse (N), Smoker (S), Nonsmoker (NS). The following results were obtained.

Respondent	D	D	D	N	N	D	D	D	N	D
Smoking Habit	S	NS	NS	S	S	NS	NS	NS	S	NS
Respondent	D	N	N	N	D	N	N	D	D	D
Smoking Habit	NS	NS	S	NS	S	NS	NS	NS	NS	NS
Respondent	D	N	N	N	D	D	N	N	N	N
Smoking Habit	NS	S	NS	NS	S	S	NS	S	NS	NS

- (a) Summarize the data into a 2x2 cross-tabulation table.

- (b) Summarize the data in a percentage table dividing by row totals.

- (c) Summarize the data in a percentage table dividing by column totals.

- (8) For a group of army inductees, the weight, x , and exercise capacity, y , were recorded for 10 individuals. For the following results, give the values for $SS(xy)$, $SS(x)$, $SS(y)$ and r .

x	180	150	200	155	225	175	130	250	160	190
y	30	25	20	30	15	28	30	20	26	20

Math 221: Basic Statistics Exam #1B

Week #6

Name: _____

INSTRUCTIONS: You may use a calculator for this exam and a letter-sized study sheet with information written on a single side. You must show all of your work in order to receive full credit. Read each question carefully. Be certain that you have answered the question that was asked. Remember to set your calculators in single-variable statistics (*Stat x*) mode.

Problem	Points	Score
1	12	
2	12	
3	12	
4	12	
5	12	
6	12	
7	12	
8	12	
	4	
Total	100	

- (1) At a large community college 120 students are randomly selected and asked the distance of their commute to campus. From this group a mean of 9.8 miles is computed. Match the items in Column II with the statistical terms in Column I.

Column I**Column II**

- | | |
|------------------|--|
| ___1) Data (set) | a) The process used to select the 120 students and determine their distance. |
| ___2) Experiment | b) The computed 9.8 miles |
| ___3) Parameter | c) All students enrolled at the college |
| ___4) Data (one) | d) The 120 commute distances |
| ___5) Sample | e) The 120 students |
| ___6) Population | f) The commute distance for one student |
| ___7) Variable | g) 8 miles distance for one student |
| ___8) Statistic | h) The mean commute distance for all students |

- (2) Twenty-five snow throwers of a given brand were filled with gasoline (one gallon) and allowed to run until the tank was empty. The time (in minutes) that the snow throwers operated were recorded as follows:

64 69 60 63 65 66 61 60 61 68 70 64 61 64 64
60 68 56 60 60 60 60 65 69 63

Find the mean, median, mode, and midrange for these data.

- (3) A random sample of test scores was taken from a section of an introductory statistics course. Construct a stem-and-leaf display for these data.

60 98 97 68 82 80 49 77 85 55 72 85 85 83 99

- (4) Consider the following sample of size $n = 65$ ordered from smallest to largest:

127 130 131 132 136 137 140 142 144 146 150 151 159 162 166
170 173 174 177 183 203 205 212 215 218 221 223 226 229 232
239 243 249 264 266 268 268 269 271 272 284 285 291 303 304
309 310 311 315 317 324 332 337 351 354 355 365 366 368 369
382 388 392 401 418

- (a) Prepare a five-number summary of this data set.

- (b) Construct a Box-and-Whisker display of the data set.

(5) A particular standardized test has a mean score of 455 with a standard deviation of 112.

(a) A student scored 575 on this test. Determine the student's z -score.

(b) What score has a z -score equal to -0.40 ?

(6) In a survey, respondents were asked to state their marital status. The following responses were obtained: 15 single (never married), 29 married, 20 divorced, and 8 widowed. Construct a Pareto diagram for this data.

- (7) A survey of 15 doctors and 15 nurses was conducted, and one question was asked related to their smoking habit. The following coding was used: Doctor (D), Nurse (N), Smoker (S), Nonsmoker (NS). The following results were obtained.

Respondent	D	D	D	N	N	D	D	D	N	D
Smoking Habit	S	S	NS	S	S	NS	NS	NS	S	NS
Respondent	D	N	N	N	D	N	N	D	D	D
Smoking Habit	NS	S	S	NS	S	NS	NS	NS	NS	NS
Respondent	D	N	N	N	D	D	N	N	N	N
Smoking Habit	NS	S	NS	S	S	S	NS	S	NS	NS

- (a) Summarize the data into a 2x2 cross-tabulation table.

- (b) Summarize the data in a percentage table dividing by row totals.

- (c) Summarize the data in a percentage table dividing by column totals.

- (8) For a group of army inductees, the weight, x , and exercise capacity, y , were recorded for 10 individuals. For the following results, give the values for $SS(xy)$, $SS(x)$, $SS(y)$ and r .

x	185	155	205	160	230	180	135	255	165	195
y	30	25	20	30	15	28	30	20	26	20

Math 221: Basic Statistics Exam #1C

Week #6

Name: _____

INSTRUCTIONS: You may use a calculator for this exam and a letter-sized study sheet with information written on a single side. You must show all of your work in order to receive full credit. Read each question carefully. Be certain that you have answered the question that was asked. Remember to set your calculators in single-variable statistics (*Stat x*) mode.

Problem	Points	Score
1	12	
2	12	
3	12	
4	12	
5	12	
6	12	
7	12	
8	12	
	4	
Total	100	

- (1) At a large community college 120 students are randomly selected and asked the distance of their commute to campus. From this group a mean of 9.8 miles is computed. Match the items in Column II with the statistical terms in Column I.

Column I**Column II**

- | | |
|------------------|--|
| ___1) Variable | a) The process used to select the 120 students and determine their distance. |
| ___2) Population | b) The computed 9.8 miles |
| ___3) Statistic | c) All students enrolled at the college |
| ___4) Data (one) | d) The 120 commute distances |
| ___5) Sample | e) The 120 students |
| ___6) Experiment | f) The commute distance for one student |
| ___7) Data (set) | g) 8 miles distance for one student |
| ___8) Parameter | h) The mean commute distance for all students |

- (2) Twenty-five snow throwers of a given brand were filled with gasoline (one gallon) and allowed to run until the tank was empty. The time (in minutes) that the snow throwers operated were recorded as follows:

64 68 59 62 64 65 60 59 60 67 69 63 60 63 63
59 67 55 59 59 59 59 64 68 62

Find the mean, median, mode, and midrange for these data.

- (3) A random sample of test scores was taken from a section of an introductory statistics course. Construct a stem-and-leaf display for these data.

50 88 87 63 77 75 39 87 95 54 71 82 81 80 91

- (4) Consider the following sample of size $n = 65$ ordered from smallest to largest:

137 140 141 142 146 147 150 152 154 156 160 161 169 172 176
180 183 184 187 193 213 215 222 225 228 231 233 236 239 242
249 253 259 274 276 278 278 279 281 282 294 295 301 313 314
319 320 321 325 327 334 342 347 351 354 365 375 376 378 379
382 388 392 411 418

- (a) Prepare a five-number summary of this data set.

- (b) Construct a Box-and-Whisker display of the data set.

(5) A particular standardized test has a mean score of 455 with a standard deviation of 112.

(a) A student scored 575 on this test. Determine the student's z -score.

(b) What score has a z -score equal to -0.40?

(6) In a survey, respondents were asked to state their marital status. The following responses were obtained: 25 single (never married), 22 married, 8 divorced, and 14 widowed. Construct a Pareto diagram for this data.

- (7) A survey of 15 doctors and 15 nurses was conducted, and one question was asked related to their smoking habit. The following coding was used: Doctor (D), Nurse (N), Smoker (S), Nonsmoker (NS). The following results were obtained.

Respondent	D	D	D	N	N	D	D	D	N	D
Smoking Habit	NS	S	NS	S	S	NS	NS	NS	S	NS
Respondent	D	N	N	N	D	N	N	D	D	D
Smoking Habit	NS	NS	S	NS	S	NS	NS	NS	NS	NS
Respondent	D	N	N	N	D	D	N	N	N	N
Smoking Habit	NS	NS	NS	NS	S	NS	NS	S	NS	NS

- (a) Summarize the data into a 2x2 cross-tabulation table.

- (b) Summarize the data in a percentage table dividing by row totals.

- (c) Summarize the data in a percentage table dividing by column totals.

- (8) For a group of army inductees, the weight, x , and exercise capacity, y , were recorded for 10 individuals. For the following results, give the values for $SS(xy)$, $SS(x)$, $SS(y)$ and r .

x	185	155	205	160	230	180	135	255	165	195
y	35	30	25	35	20	33	35	25	31	25