MATHEMATICS DEPARTMENT Stat2361
Worksheet#2

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(Q1) The table below summarizes the weight (kg) and gender of some employees of BZU.

Weight	**Male**	**Female**	
50 – 64	5	8	
65 – 79	7	6	
80 – 94	10	4	
95 – 109	9	1	

(1) What is the name of this table?

(2) What is the number of observations?

(3) Determine the scale of measurement for each variable in this study.

(4) What is the percentage of females?

(5) What is the proportion of employees with weights between 80 and 94 kg?

(6) What is the percentage of males whose weights are between 65 and 79 kg?

(7) What is the number of employees whose weights are less than or equal 79 kg?

(8) Among the females, what is the percentage of employees with weights between 50 and 64 kg?

(9) Show the column percentages.

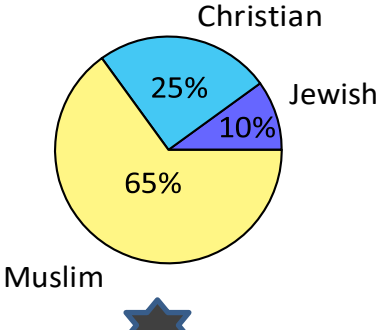
(10) Which gender is more likely to have weights are between 65 and 79 kg

(Q2) The pie chart below represents the religion of a sample of 60 residents.

(1) What is the scale of measurement?

(2) What is the sample size?

(3) Find the number of Christians in this sample.



(Q3) The graph below summarizes the rating of BZU by a group of students..

(1) What is the name of this graph?

(2) What is the population?

(3) What is the sample size?

(4) What is the scale of measurement?

(5) What is the number of students who think BZU is poor?

(6) What is the proportion of students who think BZU is good?

(7) What is the percentage of students who think BZU is very good?

(Q4) Given the summary below.

Age	F
20 - 26	121
27 - 33	82
34 - 40	94
41 - 47	100
48 - 54	103

(1) Find the mean age.

(2) Find the sample standard deviation.

(3) Find the sample variance.

(4) Find the population standard deviation.

(5) Find the population variance.

(Q5) The measures below summarize a sample of individuals.

Mean	Median	Variance	First Quartile	Third Quartile
40	65	64	50	80

(1) Find the standard deviation.

(2) Find the interquartile range.

(3) Find the coefficient of variation.

(4) Find the *z*-score of the data value 60

(5) Determine whether the data value 120 is an outlier or not.

(6) Find the 50th percentile.

(7) What percentage of data values is less than or equal 65?

(8) What percentage of data values is more than or equal 80?



(Q6) A survey about a sample of BZU students is summarized below.

	Watch Horror Movies		
Weight (kg)	Yes	No	*Total*
Less than 50	6	8	
50 - 65	8	10	
66 - 81	9	5	
82 - 97	12	0	
More than 97	15	7	
Total			

(1) What is the probability that a student weighs 82 to 97 kg?

(2) What is the probability that a student does not watch horror movies?

(3) What is the probability that a student weighs more that 65 kg?

(4) What is the probability that a student watches horror movies and weighs less than 50 kg?

(5) What is the probability that a student does not watch horror movies or weighs 66 to 81 kg?

(6) If a student weighs 50 to 65 kg, what is the probability he/she does not watch horror movies?

(7) If a student watches horror movies, what is the probability he/she weighs more than 97 kg?

(8) Are the variables in our survey independent? Explain using parts (2) and (6)



(Q7) Let $S = \{E_1, E_2, E_3, E_4, E_5, E_6\}$ be a sample space, and let $A = \{E_2, E_3\}$, $B = \{E_4, E_5, E_6\}$, and $C = \{E_1, E_3, E_4, E_6\}$ be events from S. Consider the following table.

Sample point	E_1	E_2	E_3	E_4	E_5	E_6
Probability	0.05	0.20	0.10		0.30	0.10

(1) Find $P(E_4)$

(2) Find $P(B)$

(3) Find $P(A^c)$

(4) Find $P(B \cap C)$

(5) Find $P(A \cup B)$

(6) Find $P(A|C)$

(7) Are the events A, B independent? Explain.

(8) Are the events B, C mutually exclusive? Explain.

(Q8) The following distribution shows the Ages of some CEOs.

Age	**F**
21 - 30	1
31 - 40	8
41 - 50	27
51 - 60	29
61 - 70	24
71 and up	11

If a CEO is selected at random, find the following probabilities.

(1) A CEO is between 31 and 40?

(2) A CEO is under 31?

(3) A CEO is over 30 and under 51?

(4) A CEO is under 31 or over 60?

(Q9) A college has 1000 teachers. 435 are females. Out of the males, 40 have bachelor degrees and 300 have Doctorate degrees. Out of the females, 320 have master degrees and 85 have doctorate degrees.

(1) Complete the following crosstabulation.

	Degree			
Gender	Bachelor	Master	Doctorate	*Total*
Male				
Female				
Total				1000

(2) What is the probability of selecting a female teacher?

(3) What is the probability of selecting a master teacher?

(4) What is the probability of selecting a male and doctorate teacher?

(5) What is the probability of selecting a female or bachelor teacher?

(6) What is the probability of selecting a bachelor or doctorate teacher?

(7) If we select a male teacher, what is the probability that he has a master degree?

(8) What is the probability of selecting a female teacher given that she has a doctorate degree?

(9) Are the variables ”degree” and ”gender” independent? Why?

(10) Are the events ”male” and ”female” mutually exclusive? Why?

(Q10) You want to create a six-letter password from the English alphabet (26 letters).

(1) How many passwords can you create, if repetition is allowed?

(2) How many passwords can you create, if repetition is not allowed?

(Q11) How many ways can 5 students be selected from a group of 40 students?

(Q12) How many ways can 5 employees be selected from a group of 40 employees, to form a committee (with positions)?

(Q13) How many different ID cards can be made if there are 6 digits on a card and no digit can be used more than once?