

Practice Problems Section 3C

Formulas

Conditional Proportion = Intersection of the row and column \div Row or column total for Condition

Circle the row or column that has the condition. Use only numbers in that row or column when calculating the conditional proportion.

To convert a proportion into a percentage, multiply by 100%.

Directions #1-4: The following contingency table was created from the Math 075 Survey Data Fall 2015 and describes the student's favorite social media and whether or not they have a tattoo. Use the table to find the given proportions and percentages. Show your work.

Tattoo (at least one)? \ Social Media favorite?	Twitter	Instagram	Facebook	Snapchat	Other	Total
Yes	13	38	33	15	9	108
No	78	99	66	79	29	351
Total	91	137	99	94	38	459

- How many total students have at least one tattoo?
 - How many students both have a tattoo and prefer Instagram?
 - What proportion of the tattoo students prefer Instagram? (Show how you calculated the answer.)
 - What percentage of the tattoo students prefer Instagram? (Show how you calculated the answer.)
- How many total students prefer Twitter?
 - How many students both do not have a tattoo and prefer Twitter?
 - What proportion of the Twitter students do not have a tattoo? (Show how you calculated the answer.)
 - What percentage of the Twitter students do not have a tattoo? (Show how you calculated the answer.)
- How many total students do not have a tattoo?
 - How many students both do not have a tattoo and prefer Facebook?
 - What proportion of the no tattoo students prefer Facebook? (Show how you calculated the answer.)
 - What percentage of the no tattoo students prefer Facebook? (Show how you calculated the answer.)
- How many total students prefer Snapchat?
 - How many students both have a tattoo and prefer Snapchat?
 - What proportion of the Snapchat students have a tattoo? (Show how you calculated the answer.)
 - What percentage of the Snapchat students have a tattoo? (Show how you calculated the answer.)



Directions #5-8: The following contingency table was created from the Math 075 Survey Data Fall 2015 and describes the campus the student attended and the type of transportation they took to get to school. Use the table to find the given proportions and percentages. Show your work.

Campus \ Transportation type to campus	Drive alone	Public transportation	Dropped off by someone	Carpool	Walk	Other	Bicycle	Skate	Total
Canyon Country Campus	138	7	14	15	1	4	1	0	180
Valencia Campus	203	17	32	22	3	0	1	1	279
Total	341	24	46	37	4	4	2	1	459

5.
 - a) How many total students went to the Canyon Country campus?
 - b) How many students both drive alone and went to the Canyon Country campus?
 - c) What proportion of the Canyon Country campus students drove alone to school?
(Show how you calculated the answer.)
 - d) What percentage of the Canyon Country campus students drove alone to school?
(Show how you calculated the answer.)

6.
 - a) How many total students were dropped off by someone?
 - b) How many students were both dropped off and went to the Canyon Country campus?
 - c) What proportion of the dropped off students went to the Canyon Country campus?
(Show how you calculated the answer.)
 - d) What percentage of the dropped off students went to the Canyon Country campus?
(Show how you calculated the answer.)

7.
 - a) How many total students went to the Valencia campus?
 - b) How many students both carpool and went to the Valencia campus?
 - c) What proportion of the Valencia campus students carpool to school?
(Show how you calculated the answer.)
 - d) What percentage of the Valencia campus students carpool to school?
(Show how you calculated the answer.)

8.
 - a) How many total students used public transportation to school?
 - b) How many students both used public transportation and went to the Valencia campus?
 - c) What proportion of the public transportation students went to the Valencia campus?
(Show how you calculated the answer.)
 - d) What percentage of the public transportation students went to the Valencia campus?
(Show how you calculated the answer.)



9. Copy and paste the gender and month data taken columns from the “Bear” data into StatKey. Use StatKey to calculate the following. Let bear gender represent the rows and month data was taken represent the columns.

Directions for creating contingency table with StatKey from Raw Data:

- Open the “Math 075 Survey Data Fall 2015”. Copy and paste the two columns next to each other in a new spreadsheet. Then copy both columns together.
- Go to www.lock5stat.com and click on “StatKey”. Under the “Descriptive Statistics and Graphs” menu, click on “Two Categorical Variables”. Click the “Edit Data” button. Push “Control A” and “Delete” on your keyboard to delete out any existing data. Then paste in your two columns of data. Check the box that says “Raw Data”. If your data has a title, check the box that says “Data has a header row”. Then push “OK”. The rows should be gender and the columns should be month data taken. If it is not, simply click the “Switch Variables” button.
- Click on the “Row” proportions button and use the conditional row proportions to answer the questions.

a) What proportion of the female bears were measured in August?

b) What proportion of the male bears were measured in August?

c) Compare your answer in letter (a) to your answer in letter (b). Do the proportions look close or significantly different?

d) What proportion of the female bears were measured in October?

e) What proportion of the male bears were measured in October?

f) Compare your answer in letter (d) to your answer in letter (e). Do the proportions look close or significantly different?

g) Do your answers in letters (c) and (f) indicate that the bear gender may be related to what month the bears are measured in? Explain your answer.

h) If data indicated that bear gender was related to the month the bears were measured in, would that prove that the gender of the bear causes the bear to be measured in a certain month? Explain your answer.

10. Type in the following contingency table into StatKey and use the “Overall Proportions” button in StatKey to calculate the following proportions.

Directions for putting a contingency table into StatKey:

- Go to www.lock5stat.com and click on “StatKey”. Under the “Descriptive Statistics and Graphs” menu, click on “Two Categorical Variables”.
- Click the “Edit Data” button. Push “Control A” and “Delete” on your keyboard to delete out any existing data. Then type in the contingency table with commas as seen below. Do NOT check the box that says “Raw Data”. Check the box that says “Data has a header row”. Then push “OK”. The rows should be the servers and the columns should be the type of payment. If they are not, simply push the “switch variables” button.
- Click on the “Column” proportions button and use the conditional column proportions provided to answer the questions.

Contingency Table (Credit Card by Server)

[Blank], Cash, Credit Card

Server A, 39, 21

Server B, 50, 15

Server C, 17, 15



- a) What proportion of the credit card customers were served by server A?
 - b) What proportion of the credit card customers were served by server B?
 - c) What proportion of the credit card customers were served by server C?
 - d) Do your answers in parts (a), (b) and (c) seem close or significantly different?
 - e) Does your answer in part (d) indicate that paying with a credit card may be related to who the server is?
Explain your answer.
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