P.S. #9.2 - Two-Way Tables Day 1

Name _____ Class _____

1.) Explain why two-way tables represent categorical or qualitative bivariate data.

The two-way frequency table, shown below, displays the data collected from a random group of high school students regarding whether they "liked" skateboards and/or "liked" snowmobiles. Answer the questions below, regarding this table.

2.) How many students participated in the survey? _____

3.) How many students said they "like" snowmobiles? _____

4.) How many of the students "like" snowmobiles but "do not like" skateboards? _____

	Like Skateboards	Do Not Like Skateboards	Totals
Like Snowmobiles	80	25	105
Do not like Snowmobiles	45	10	55
Totals	125	35	160

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5.) How many students said they "do not like" skateboards? _____

The two-way table below shows the number of birds at a local bird-feeding station and their respective colors. Some of the birds are grey in color, some are black in color, some have both colors, and some have neither color. With the following information, complete the two-way table.

- There are 18 birds that show both a black and a grey color.
- There are a total of 29 birds that show at least a black color.
- There are a total of 41 birds that show at least a grey color.
- There are 6 birds that show neither a black nor grey color.
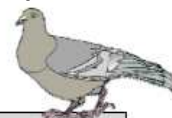
Birds' Colors 2-way Table	Grey	No Grey	Totals
Black			
No Black			
Totals			

Using the two-way table, answer the following questions:

6.) How many birds have black but no grey color? _____

7.) How many birds have grey but no black color? _____

8.) How many birds have no black color? _____

9.) How many birds were seen at the feeding station? _____

10.) What percent of the birds observed at this feeding station show both black and grey colors? (round to the nearest percent) _____

11.) What percent of the birds observed at this feeding station show neither a black nor grey color? (round to the nearest percent) _____

From a student survey, it is found that there are 59 total students who own cell phones, and 34 students that also own an MP3 player. There are 18 students that own an MP3 player but no cell phone, and 7 students that own neither a cell phone nor an MP3 player. Using this information, complete the two-way table below.

Student Survey Two-way Table	MP3 Player	No MP3 Player	Totals
Cell Phone			
No Cell Phone			
Totals			

Using the two-way table, answer the questions below. Round any percent answers to the nearest percent. Show work for percent answers.

12.) How many students own a cell phone but not an MP3 player? _____

13.) How many students do not own a cell phone? _____

14.) What is the total number of the students in the survey? _____

15.) What percent of the total number of students own an MP3 player? _____

16.) What percent of the total number of students own a cell phone? _____

17.) If a student in this survey is selected at random, what is the probability that the student would not have either a cell phone or an MP3 player? _____

18.) If a student in this survey is selected at random, what is the probability that the student will own an MP3 player but not a cell phone? _____

19.) Cooper's cab company charges $2.00 plus an additional $4.00 per mile for a ride. Zack's cab company charges $5.00 plus an additional $3.00 per mile for a ride.
Write a system of linear equations that shows the cost in dollars, y, for a cab ride of x mile for each cab driver.

Cooper's _____

Zack's _____

At what distance, in miles, will the cost be the same for both companies?
Show your work.

Which cab driver's charge will be less for a ride that is 10 miles long? Explain how you know.

20.) The initial water temperature in Tank A was 76°C. The graph shows the temperature of the water in Tank A, $y°$ C, as a function of the number of minutes the water is headed, x.
Tank B contains the same volume of water as tank A, but the initial water temperature in Tank B was 80°C.
The table shows the temperature of the water in Tank B, y°C, as a function of the number of minutes the water is heated, x.

Number of Minutes (x)	0	1	2	3	4	5
Water Temperature (y°C)	80	82	84	86	88	90

a.) On the coordinate plane above, plot a graph to represent the function in the table.

b.) Write an algebraic equation to represent each function in the graph.
Show your work.
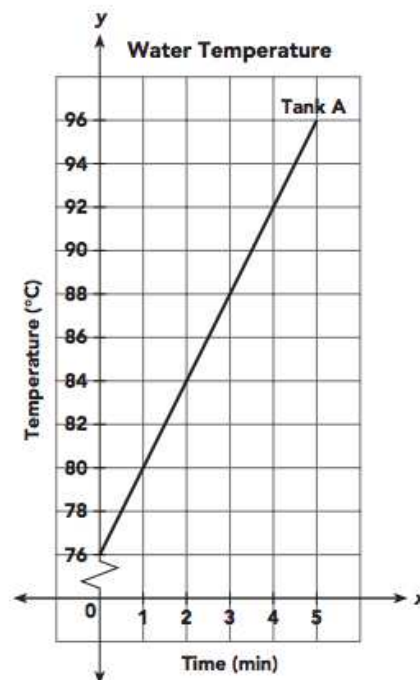
Answer:
Tank A: _____   *Tank B:* _____

c.) Compare the initial temperature of each tank.

d.) Compare the rate in which the temperature is increasing in each tank.

e.) Give a possible reason for the difference in the rate of temperature change.

f.) After how many minutes will the two tanks have the same temperature?

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