Math Challenge #14

First Name: _____	Last Name: _____	Grade: _____
Teacher: _____	Parent's email: _____	

Charts, Tables, and Graphs

Welcome to Math Challenge #14. Charts, tables, and graphs are visual representations we use to organize information or data. In this challenge, we explore ways of reading and interpreting data from charts, tables, and graphs.

Kinder & First Grade: solve <u>at least</u> 3 problems.
Second & Third Grade: solve <u>at least</u> 7 problems.
Fourth Grade and above: solve <u>at least</u> 12 problems.

Answer

1.

Liza lines up the animals in order of size (as seen in the diagram to the left), beginning with the smallest. Which animal will be in the middle of her list?

2. There are 3 types of shapes in the drawing below. Use the data above to complete the table and to answer the following questions.

Shapes	
Type	**Number of shapes**
Rectangles	
Circles	
Triangles	

    a. How many circles are there?

    b. How many more more triangles than rectangles are there?

a.

b.

3. The math club at Washington Elementary School is collecting caned goods. Brian is recording the number of cans collected.

Cans Collected Chart						
Grade	K	1	2	3	4	5
Number of cans	24	36	60	76	70	48

    a. Which grade collected the most cans?

    b. Which grade(s) collected more than 50 cans but less than 70 cans?

Bonus question: Which grade collected half the amount collected by the fifth grade?

a.

b.

4.

Miami, Florida
Average High Temperature

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
76°	77°	80°	83°	86°	88°	89°	90°	88°	85°	80°	77°

Use the temperature chart above to answer the following questions.

a. Which month can you expect to be the hottest?
b. Which month can you expect to be the coldest?
c. How many months are there in which the average high temperature is less than 80 degrees?

a.
b.
c.

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5. The bar graph on the right shows the favorite car colors of third graders.

a. Which color received the most votes?
b. Which color received the fewest votes?
c. During the voting day, 2 students were absent and were not able to vote. If all third graders were present and participated in the vote, how many votes would there have been in all?

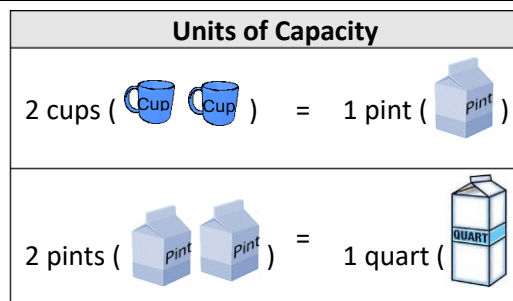Favorite Car Color of 3rd Grade

a.
b.
c.

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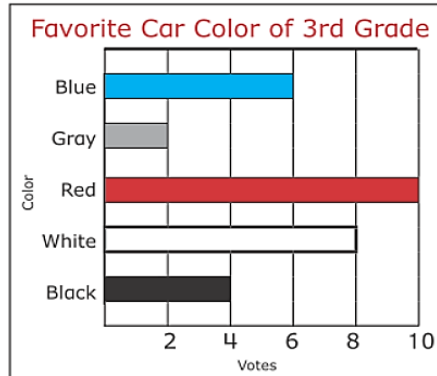
6. Capacity is the amount a container can hold. Study the chart on the right and fill in the blanks below.

Units of Capacity

2 cups (Cup Cup) = 1 pint (Pint)

2 pints (Pint Pint) = 1 quart (QUART)

a. Pint Pint = ____ cups

b. Pint Cup Cup Cup Cup = ____ pints

c. Cup Cup Cup Cup Cup Cup = ____ pints

d. Pint Pint Pint Cup Cup Cup Cup Cup Cup = ____ quarts

a.

b.

c.

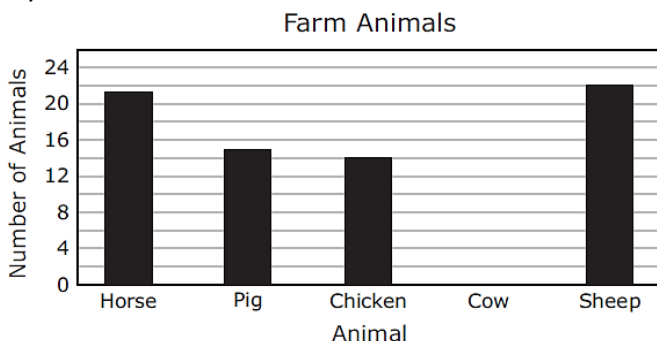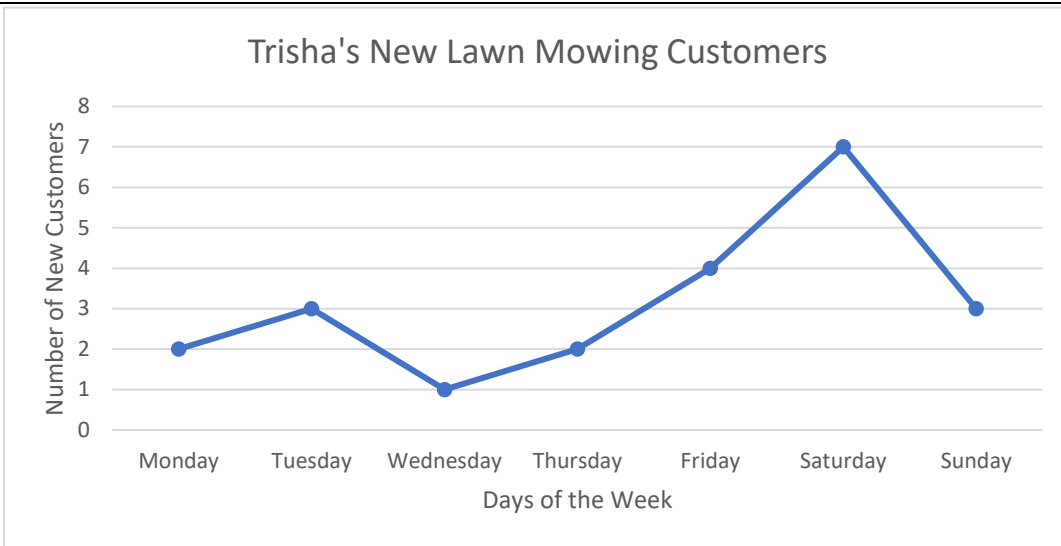*d.*

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7. The graph below shows the number of each kind of animal on a farm. The bar for the number of cows on the farm is missing. If there is a total of 82 animals on the farm, how many of them are cows?

Farm Animals

8.

Trisha's New Lawn Mowing Customers

Use the chart above to answer the following questions.

a. How many new customers did Trisha's get for the week?

b. If Trisha charged $20 to mow a yard, how much money would she make mowing all the new customers' yards for that whole week?

a.

b.

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9. Mrs. Borseth needs a helper every day during recess. Five students volunteered, but not all of them are available every day. Mrs. Borseth made a table showing which students are available on each day of the week. If she has to pick one student each day and she has to pick 5 different students on 5 different days, which student should she pick on Friday?

MON	TUE	WED	THU	FRI
Angela Benjamin Ciarra	Benjamin Ciarra	Angela Benjamin Ciarra Ender	Ciarra	Angela Benjamin Ciarra Dominique Ender

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10. The sign shows when the coffee shop opens. How many hours is the Cup of Joe open during the course of one whole week (Monday to Sunday)?

**Cup of Joe Hours**

MONDAY – THURSDAY
6:00 AM – 2:30 PM

FRIDAY – SATURDAY
6:00 AM – 8:00 PM

SUNDAY
7:30 AM – 3:30 PM

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11. Alicia asked a group of students to choose their favorite type of music from the choices of pop, rock, hip-hop, and country. The results of the survey are shown in the graph. Based on the graph, if the ratio stays the same between the favorite types of music, how many students in a class of 360 students would be expected to choose hip-hop as their favorite type of music?
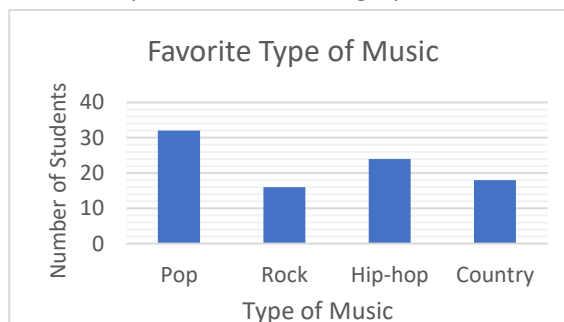
Favorite Type of Music

12.	A choir director made a histogram showing the ages of the members of the choir.	

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Ages of Choir Members
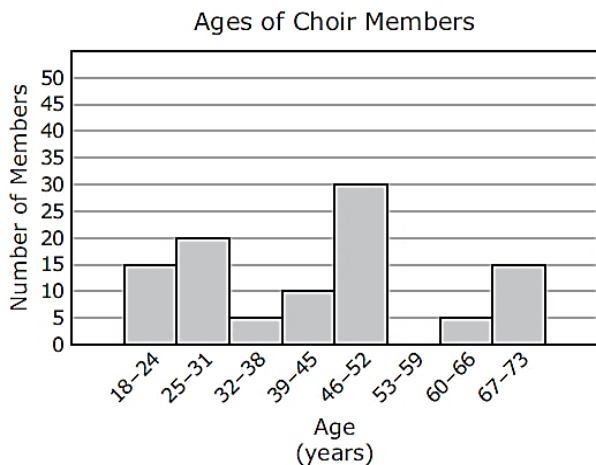
Four members of the choir made the following statements about the data in the histogram:

Alicia says, "More than half the members are from 46 to 73 years old."

Bella says, "There are more men than women in the choir."

Charlie says, "The choir has a total of 100 members."

Duncan says, "Exactly 20 members are less than 32 years old."

Emily says, "20% of us are in 60 years old or older."

Whose statement(s) can be proven by the histogram as true?

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13. Sujitha earned the following scores on her science tests: 82, 75, 92, 81. What score will she need to get on the next test if she wants an average of 85?

An average (arithmetic mean) can be calculated by adding a group of numbers and then dividing them by the count of those numbers.

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14. A researcher surveyed 5 randomly selected employees from each of four different companies about their daily commutes to work. The table below shows the commute times for the surveyed employees. Based on the data, which company most likely has the longest average commute time per employee?

Commute Times for Selected Employees			
Company A	Company B	Company C	Company D
24	6	15	13
26	32	15	10
39	9	15	45
23	31	15	12
21	21	15	15

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15. Amanda and her sister are going bowling on a Tuesday afternoon. Their parents gave them a $20 bill and a $10 bill to spend on bowling. Upon arriving at the bowling alley at 12:30 p.m., they looked at the sign that had the bowling rates (see below). Amanda and her sister each rented shoes, and they rented only one lane (which they shared) for bowling. After paying their bowling expenses, they received $4.50 in change. For how many minutes did they rent the bowling lane?

Bowling Rates

MONDAY – FRIDAY before 5:00 pm:
- Lane fee: $3.25* per 15 minutes
- Shoe rental: $3.00* per person

MONDAY – FRIDAY after 5:00 pm:
- Lane fee: $4.50* per 15 minutes
- Shoe rental: $3.00* per person

SATURDAY – SUNDAY:
- Lane fee: $30.00* per hour
- Shoe rental: $3.00* per person

*Price includes tax.

16.	There is a fixed fee to set up a party at the local trampoline gym. After that amount is paid, then there is a cost per guest. The table below shows the total cost of setting up a party of 5, 9, and 13.	

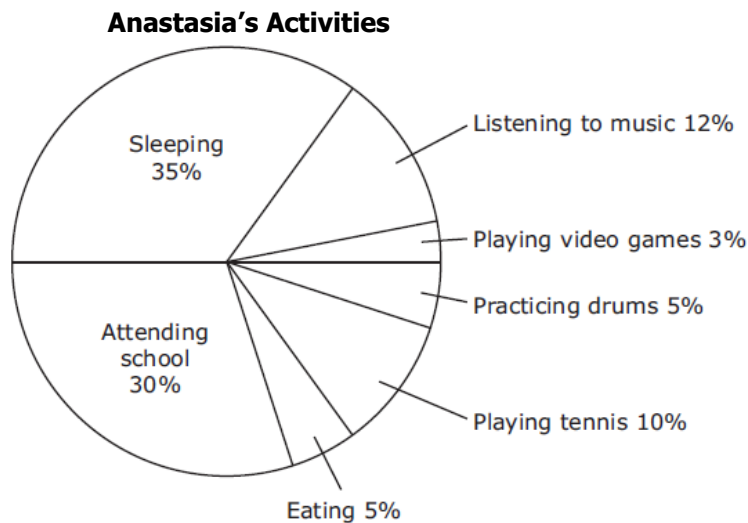| Number of guests	5	9	13
Total cost	$59	$94	$129

How much is the fixed fee to set up a party?

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17. The table below shows the weekly change in the price of one gram of gold for four weeks.

a. By how much did the price of one gram of gold change from the beginning of week 1 to the end of week 4?

b. At the end of week 4, the price per gram of gold was $69.02. What was the price per gram of gold at the beginning of week 1?

One Gram of Gold	
Week	Weekly Change in Price (dollars)
1	+1.25
2	-3.125
3	+0.625
4	+1.5

a.

b.

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18. The circle graph shows Anastasia's activities for 24 hours. How much more time, as a decimal number of hours, in hours did Allen spend listening to music than playing tennis?

Anastasia's Activities

Sleeping 35%
Listening to music 12%
Playing video games 3%
Practicing drums 5%
Attending school 30%
Playing tennis 10%
Eating 5%