

You need out your Warm Up & Agenda

Homework: Valid/Invalid. QUIZ MONDAY!

Warm Up:

1) It takes 3 eggs to make 5 waffles. How many eggs will it take to make 19 waffles?

$$\begin{array}{r}
 \text{egg} \quad 3 \\
 \text{waf} \quad 5 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 3 \\
 5 \\
 \hline
 19
 \end{array}
 \quad
 \begin{array}{r}
 ? \\
 5x = 51 \\
 \hline
 x = 10.2
 \end{array}$$

2) You want to know people of Marietta's favorite restaurant. You interview people outside of Olive Garden. What kind of survey is this? Is this a good method?

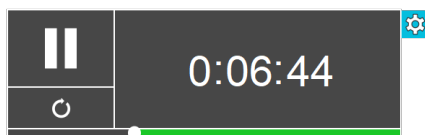
conven - bad

3) Describe a simple random survey

fair chance - picking names
dice
you wheel

Biased or Unbiased

Sort your situations into 2 groups. Are they biased or unbiased



Asking football fans about their favorite team in the league as they are leaving the stadium. B	Asking people about their favorite movie as they are walking out of the grocery store. UB	All students in first period are asked which meal they like the best in the cafeteria. B	People at a Republican Presidential Debate are asked who they think should be president. B	Only the computer club is asked which program at the school should get money from student council. B
Only Taylor Swift fans are asked about who should sing at an awards show. B	The librarian wants to know which books she should buy for the library. She asks all of the students who come to the library for a day. B	A princess wants to know what people think of her, so she goes undercover as a common person and asks people in the street. UB	A captain of a pirate ship wants to know if the pirates like him. He asks the pirates one by one with a sword pointed at them. B	On the bottom of your receipt there is an offer for \$5 off your next purchase if you complete a survey online. B
Sammy wants to know which grade in school, 4 th , 5 th , or 6 th people liked the most. He asks everyone in his 7 th grade classes. B / UB?	People are chosen at random to try two different kinds of soda (both in clear glasses) and vote which one tastes the best. UB	Students vote on which type of cake they want for the class party and they can see what everyone else is voting. B / UB?	Students vote on what type of animal to get for the class mascot on a secret ballot that no one else will see. UB	Two people are eligible for employee of the month. One of them bakes cookies and gives them to all of the people voting. B
A zombie wants to know if people are afraid of zombies. He eats their brains before asking the question. B	You ask a group of people at Mystical Creature Con (convention) which are better unicorns or horses? B	You ask 100 people in Gotham City and 100 people in Metropolis who is a better super hero Batman or Superman. B / UB	A mom thinks her baby is the cutest baby in the world. B	Amanda likes Brandon and Gracie likes Brandon. Gracie tells Brandon that Amanda says bad things about him behind his back. B

Making Valid Conclusions & Making Predictions



IMPORTANT QUESTION: What condition(s) need to be met for a sample to be representative of the population? **AKA: WHAT MAKES A SURVEY'S CONCLUSIONS VALID?**

WHO who do we want to know about

WHAT what do they want to know

HOW how are they going to find out their information?

Survey method

→ A *Valid Conclusion* is made by using an unbiased sample. (Simple Random & Systematic)

Valid → everyone had a fair chance

Invalid → everyone did not have a fair chance

1) A random sample at the mall was done by asking every 7th person who entered the mall their favorite way to travel long distances. After asking 500 different people. Most people said they prefer to travel long distance trips by plane. They concluded that most people probably prefer to travel long distances by a plane. Is this a valid conclusion? Why or why not?

Systematic
yes-valid

2) Allie is conducting a survey to determine people in her town's favorite movie. She decides to randomly interview 7 people walking into the movie "The Notebook." All the people interviewed said they like romance movies the best, so she concludes most people in her town prefer romance movies.

Is this a valid conclusion? Why or why not?

Convenience - B

Invalid → not everyone had a fair chance

3) Robert wants to know how students in his school feel about PE. Which method would give us results that best represent the entire population?

- A. Survey 5 students from each PE class
- ☒ B. Survey every 10th person who enters the cafeteria at each lunch
- ~~C. Survey all students in Robert's 1st period class~~
- ~~D. Survey every 4th student who goes to band~~

4) Jill wants to know how teachers in the Cobb County School District feel about getting new computers. Which of the following methods would give us results that best represent the entire population?

- ☒ Survey teachers who have protested new computers
- ☒ Randomly survey 30 teachers and ~~students~~ from Cobb County
- ☒ Survey the first 15 teachers to arrive at Jill's school
- ☒ D. Survey 30 random teachers within the school district

Making Predictions:

We can make predictions by setting up a proportion.

Example 1:

The students in Mrs. Blackwell's class brought photos from their summer break. The table shows how many students brought each type of photo. If there are 560 students in the school, how many would Mrs.

Blackwood expect to bring a photo taken at a theme park?

Summer Break Photos	
Location	Students
beach	6
campground	4
home	7
theme park	11

total 28

1. We need to find how many total students there are:

2. Set up our proportion: $\frac{\text{theme park}}{\text{total students}}$

3. Solve for x:

$$\begin{array}{r}
 \begin{array}{cc}
 S & L \\
 11 & x \\
 28 & 560
 \end{array} \\
 28x = 6160 \\
 \frac{28x}{28} = \frac{6160}{28} \\
 x = 220
 \end{array}$$

Example 2: Mr. Sherwood opened a pizza restaurant. He took a random survey of customers to find out their favorite pizza topping and recorded it in the table below.

Topping	Customers
Pepperoni	24
Bacon	10
Sausage	12
Cheese	14

If Mr. Sherwood expects to sell 150 pizzas on Friday night, how many pepperoni pizzas should he expect to sell? (Set up a proportion.)

$$\frac{\overset{S}{24}}{\overset{total}{60}} = \frac{\overset{L}{x}}{150}$$

Example 3: Ms. LaRue took a survey of the students in her classes to see how many are likely to attend the school dance. She surveyed 48 students, and 12 said they would attend. If the school has 640 students, how many students might Mrs. LaRue expect to attend the school dance? (Set up a proportion.)

$$\begin{array}{c} S \\ \frac{12}{48} \end{array} = \begin{array}{c} L \\ \frac{x}{640} \end{array}$$

Thursday 3/20's Homework

Making Valid Conclusions & Making Predictions- Homework

Determine the type of survey used. Then determine if the following if the conclusion is valid.

1. To determine if the class of 30 students understood the homework assignment, the math teacher checks the top 3 papers in the pile of collected homework. The teacher finds that all students understood the homework assignment, so she determines the entire class understood the homework.

2. A member of the cafeteria staff asks every fifth student leaving the cafeteria during each lunch to rank 5 vegetables from most favorite to least favorite. She finds that corn is one of the favorite vegetables, so she determines that most students at the school like corn.

3. Mrs. Lyons wants to give away a free vacation to Disney World. She puts each teachers name in a bucket, and draws a name.

4. The following table shows Mr. Randstad's survey results from what career they want.

Career Field	Students
Entertainment	17
Education	14
Medicine	11
Public service	6
Sports	2

If there are 500 students in the 7th grade, how many would you predict to want a career in sports?

5.

Pizza Preferences

Topping	# of customers
Pepperoni	24
Cheese	10
Mushroom	14
Sausage	12

What is the size of the sample?

- A. 4
- B. 50
- C. 60
- D. 64