

MATH 311 – REVIEW FOR EXAM 3

29.2

Identifying sample & population

Determining when to sample vs. when to use population

Statistics vs. parameters

Bias in sampling: *how is the sample different, how does the difference affect the results*

Sampling types: *simple random, self-selected, convenience, stratified random, cluster, systematic.* (Know these, not listed on exam)

29.4

Categorical data and measurement data

32.1 – 32.2

Variability in sampling – not all samples will have the same results

What confidence intervals indicate

How sample size affects variability & confidence intervals

Predicting parameters given a statistic and a sample size using $\pm \frac{1}{\sqrt{n}}$.

30.1 – 30.2

Drawing a bar graph or histogram

Reading information off a bar graph or histogram

Computing information for a circle/pie graph

Reading information off a circle/pie graph

Making or reading information off a stem & leaf plot

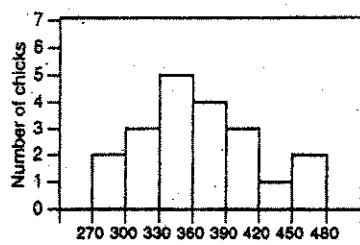
Determining an appropriate graph for a data set

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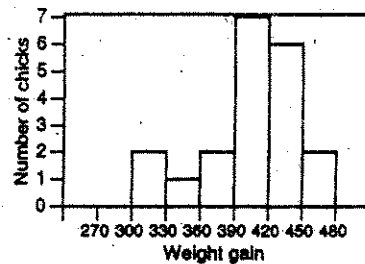
1. Emma wanted to know how many students took night classes at a college, so she surveyed 150 people where were walking into the cafeteria on campus at dinnertime.
 - a. Which group was likely over-represented? People who take night classes or people who do not?
 - b. Explain why.

2. A sample of 400 people said that they prefer to see an action movie to a romantic movie 62% of the time. What can we say about the true population parameter. Write answer using a complete sentence.

3. These histograms show how much weight baby chicks gained on two experimental diets, Corn A diet and Corn B diet.



Corn A



Corn B

- a. How many chicks were involved in the study for Corn A? _____ Corn B? _____
 - b. How many chicks gained 390 or more g on Corn A? _____, Corn B? _____
 - c. What is the probability that a chick gained less than 390 g on Corn A? _____
Corn B? _____
 - d. If you were a farmer (and you wanted your chicks to gain weight) which corn would you choose and why?
4. The score for a quiz in one class were: 45, 63, 67, 68, 69, 71, 72, 72, 72, 73, 75, 78, 78, 80, 81, 82, 85, 87, 92, 93, 99
Make a histogram to display this data

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Key

1. Emma wanted to know how many students took night classes at a college, so she surveyed 150 people where were walking into the cafeteria on campus at dinnertime.

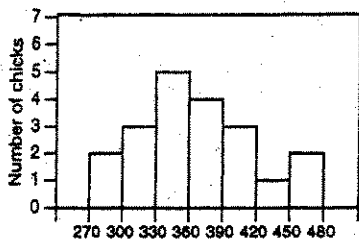
a. Which group was likely over-represented? People who take night classes or people who do not? *people who take night classes*

b. Explain why. *She only surveyed at night so she is more likely to get people taking night classes*

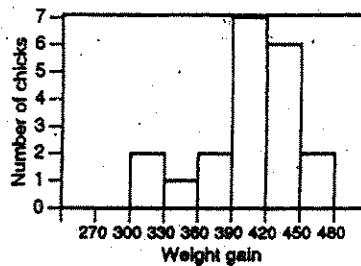
2. A sample of 400 people said that they prefer to see an action movie to a romantic movie 62% of the time. What can we say about the true population parameter. Write answer using a complete sentence.

statistic = 62%
 error = $\pm \frac{1}{\sqrt{400}} = \pm 5\%$ } *so 62% ± 5% or 57% to 67% of all people prefer an action movie to a romantic movie*

3. These histograms show how much weight baby chicks gained on two experimental diets, Corn A diet and Corn B diet.



Corn A



Corn B

a. How many chicks were involved in the study for Corn A? 20 Corn B? 20

b. How many chicks gained 390 or more g on Corn A? 6, Corn B? 15

c. What is the probability that a chick gained less than 390 g on Corn A? $\frac{14}{20} = 70\%$
 Corn B? $\frac{5}{20} = 25\%$

d. If you were a farmer (and you wanted your chicks to gain weight) which corn would you choose and why? *Corn B - more chicks gain weight*

4. The score for a quiz in one class were: 45, 63, 67, 68, 69, 71, 72, 72, 72, 73, 75, 78, 78, 80, 81, 82, 85, 87, 92, 93, 99

a. Make a histogram to display this data

