Lesson #9

Aim: 1st Final Exam Review

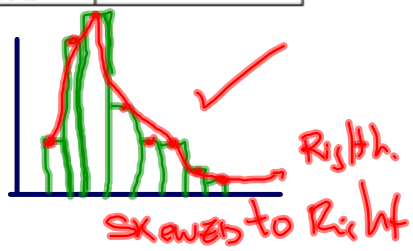
Do Now: Question 1 - 8

1. The following grouped frequency table shows the annual amount of snowfall (in inches) in NYC for the past 135 winter seasons, starting from winter 1869-70.

Variable	Frequency
0-9.9	9
10-19.9	38
20-29.9	41
30-39.9	19
40-49.9	15
50-59.9	10
60-69.9	2
70-79.9	1

For this scenario, identify the following:

a. Variable → Annual Amount of Snowfall
b. Individual (Subject) → Any winter in NYC
c. Population All winter since 1869
d. Population size 135 → seasons since 1869
e. Shape of the distribution
f. Is this variable discrete or continuous?
g. Make a histogram or a bar chart (as appropriate) for this data.



f) Continuous (decimals)

2. A researcher visited 29 randomly selected Starbucks locations and recorded the number of cappuccinos sold at each coffee shop on March 22. He summarized the data in the following frequency distribution table:

Variable	Frequency
5-9	2
10-14	5
15-19	8
20-24	10
25-29	4

10 & more

Σ 29

For this scenario, identify the following:

1. Variable — # of cappuccinos
2. Individual (Subject) — one Starbuck
3. Sample — 29 Randomly select location
4. Sample size — 29
5. Class (bin) width — 5
6. Is the variable discrete or continuous? Discrete
7. How many Starbucks locations sold at least 10 cappuccinos? 27
8. What percent of Starbucks locations sold at least 10 cappuccinos? $\left(\frac{27}{29}\right) \times 100 = 93.1\%$

3. This table presents the price distribution of shoe styles offered by an online outlet.

Variable	Frequency
10-59.99	256
60-109.99	124
110-159.99	37
160-209.99	13
210-259.99	6
260-309.99	3
310-359.99	3
360-409.99	1

For this scenario, identify the following:

a. Individual (Subject)
b. Population
c. Population size
d. Variable
e. Shape of the distribution
f. Is the variable discrete or continuous?

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360-409.99	1

+ = 443

For this scenario, identify the following:

a. Individual (Subject)
b. Population
c. Population size
d. Variable
e. Shape of the distribution
f. Is the variable discrete or continuous?

a) Shoe style
b) All shoe styles offered by online store
c) 443
d) Price of shoe style.
e) Right

4. The following frequency table shows the test score distribution for a random sample of 25 students taking an introductory statistics class at a certain college.

Score	Relative Frequency
30 – 40	0.08
41 – 51	0.04
52 – 62	0.12
63 – 73	0.24
74 – 84	0.20
85 – 95	0.32

a. Find the missing relative frequency.
b. How many students in the sample had a score of at least 63?
c. Total number of students taking an introductory statistics class at this college is 800. Based on the sample data above, estimate the total number students (in all intro to stats classes) who scored 52-84 on the test.

$+ = 0.76$

$\Sigma = 1$

a) $0.32 = \frac{\text{frequency}}{\text{total freq.}}$

b) $19 = (0.76 \times 25)$

c) $0.56 = 0.12 + 0.24 + 0.20$ $= (800)(0.56)$ $= 448$

5. A frequency distribution for the ages of randomly selected 27 students taking a statistics course in a college is given below.

Age	Frequency	
18	4	4/27
19	5	5/27
20	7	7/27
21	3	3/27
22	4	4/27
23	2	2/27
24	0	0/27
25	1	1/27
26	1	1/27
	Σ 27	27/27 = 1

a. Make a relative frequency histogram for the data. Label axes and units.

b. What is the shape of the distribution? – Right.

c. Compute the sample mean

$$\frac{(18\times 4)+(19\times 5)+(20\times 7)+\ldots(26\times 1)}{27} = 20.6$$

d. Use information from (c) to fill in the blanks in the following statement:
In the sample of 27 students taking statistics, the average age of a student is about 21 or 20.6

e. Do you agree with the following statement?
''Based on the sample data, we can infer that the average age of students taking a statistics course in a college is no greater than 21.''

Choose the best answer below:

- ✓ Yes, because the data came from a representative sample.
- ☐ No, because the sample is not representative of the population.
- ☐ No, because sample mean is different from the population mean.

Continue on your own
to At least Question 6

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