

Prep for Test # 1

You must be in class to take the test.

Bring your calculator. No Textbook.

Covers Chapters, Sections:

- 1.1-1.2 Nature of Statistics
- 2.1-2.5 Sampling, Organizing Data
Freq table, histogram, etc.
- 3.1-3.2, Mean, median, Standard Dev, etc.
- 3.4 5 Number Sum, Boxplots, IQR, etc
- 3.5 sample vs population, z-scores
- 4.1-4.3 Probability Basics, Rules

not a complete list, includes all topics covered in class



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Test Format

Part I: choice of 4 of 5 problems
(40pts @ 10 pts)

Part II: choice of 3 of 4 problems
(60pts @ 20 pts)

Problems need to be completed using
the same methods that we use in class.

Partial credit will be assigned for all problems.



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1. Review Homework

Look especially at the more complex problems from each section.

2. Review Class Notes

- a) Check first page: Do you know each topic?
- b) Redo the sections needed.

3. Review Videos

4. Review Quizzes

Contain simpler problems, so treat them as a minimum of the information you should know.

5. ReDo all Practice Quizzes

Each practice quiz has more problems than you see in one try, so some of the questions will be new.

6. Study in Groups with Other Students

Talking about math helps you to think more clearly about it and to remember it.

Prep for Test # 1

Have your calculator.

Know how to use it.

Check the batteries beforehand.

The test is only given in class on the day of the test. There will be no make-ups. If you miss the test, your grade for the test will be 0 and you will need to do a project to replace the grade.



REVIEW TOPICS

Z-score is the number of standard deviations away from the mean of a particular x value. Each data item has a z-score.

$$z = \frac{x - \mu}{\sigma}$$

population

$$z = \frac{x - \bar{x}}{s}$$

sample

distance of x from the mean
standard deviation



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Z-score is the number of standard deviations away from the mean of a particular x value. Each data item has a z-score.

G: $x = 82$, $\bar{x} = 75$, $s = 10$

F: z

G: $x = 69$, $\bar{x} = 75$, $s = 10$

F: z



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$$G: x = 82, \quad \bar{x} = 75, \quad s = 10$$

F: z

$$z = \frac{x - \bar{x}}{s} = \frac{82 - 75}{10} = \frac{7}{10} = 0.7$$

$$G: x = 69, \quad \bar{x} = 75, \quad s = 10$$

F: z

$$z = \frac{x - \bar{x}}{s} = \frac{69 - 75}{10} = \frac{-6}{10} = -0.6$$

True or False:

Two data sets that have the same frequency distribution have the same relative frequency distribution.

True or False:

Two data sets that have the same relative frequency distribution have the same frequency distribution.

True or False:
 Two data sets that have the same frequency distribution have the same relative frequency distribution.

True or False:
 Two data sets that have the same relative frequency distribution have the same frequency distribution. *same*

DATA SET 1			DATA SET 2		
CLASS	f	rel.f	CLASS	f	rel. f
A	2	0.10	A	4	0.10
B	4	0.20	B	8	0.20
C	6	0.30	C	12	0.30
D	8	0.40	D	16	0.40
Total	20		Total	40	

different

G: 24, 25, 33, 53, 30
 F: s

$$s = \sqrt{\frac{\sum(x - \bar{x})^2}{n - 1}}$$

Use the formula to set up the table

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G: 24, 25, 33, 53, 30
 F: s

x	$x - \bar{x}$	$(x - \bar{x})^2$
24	-9	81
25	-8	64
33	0	0
53	20	400
30	-3	9
<u>165</u>		<u>554</u>

$165/5 = 33.0$

$$s = \sqrt{\frac{\sum(x - \bar{x})^2}{n - 1}}$$

$$s = \sqrt{\frac{554}{4}} = 11.76$$

$\Sigma = _ + _ + _ + _$
 Σ is an operator: "add these"

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F: Median, Q1, Q3, IQR 33, 25, 24, 53, 30

$24 \left| \downarrow \right.$
 $25 \left| \downarrow \right.$ $Q1 = (24 + 25) / 2 = 24.5$
 $30 \leftarrow \text{MEDIAN} = 30$
 $33 \left| \downarrow \right.$
 $53 \left| \downarrow \right.$ $Q3 = (33 + 53) / 2 = 43.0$

$IQR = Q3 - Q1$
 $= 43.0 - 24.5$
 $= 18.5$
 Middle 50% is 18.5 units long

Five Number Sum: 24 24.5 30 43.0 53
 (not asked for)

F: Stem & Leaf Diagram

24 39 64 53 26 25
 30 33 49 43 38

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F: Stem & Leaf Diagram

24 39 64 53 26 25
 30 33 49 43 38

2	4	6	5		2	4	5	6	
3	0	9	3	8	3	0	3	8	9
4	9	3							
5	3								
6	4								

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What kind of variable is each of the following?

Subaru Outback

height

hair color



Bald Eagle counts

miles to school

time to take a test

WCC main campus

gps coordinates


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What kind of variable is each of the following?

Subaru Outback

qualitative

height

quantitative continuous

hair color

qualitative

Bald Eagle counts

quantitative discrete

miles to school

quantitative continuous

time to take a test

quantitative continuous

WCC main campus

qualitative

gps coordinates

quantitative continuous

4.1 Probability Basics

Basic Properties of Probability

1. $0 \leq p \leq 1$

2. If event can NOT happen,

$p = 0$

If a bowl contains brown and red M&Ms, find the probability that you select a blue M&M.

3. If event MUST happen,

$p = 1$

At an all girls school, find the probability that a student selected at random is female.

General Addition Rule:

$P(A \text{ or } B) = P(A) + P(B) - P(A \& B)$

If events A and B are mutually exclusive $P(A \& B) = 0$ and

$P(A \text{ or } B) = P(A) + P(B)$

Complementation Rule: $P(E) = 1 - P(\text{not } E)$

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4.2 Events

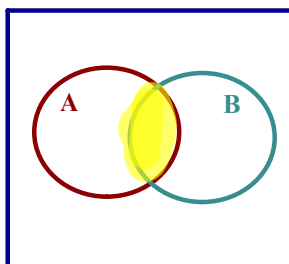
Let

A: live in Westchester

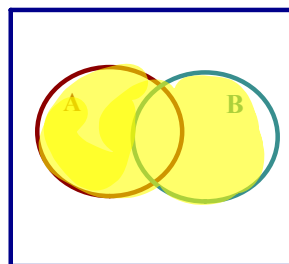
B: own a car

R: live in Rockland

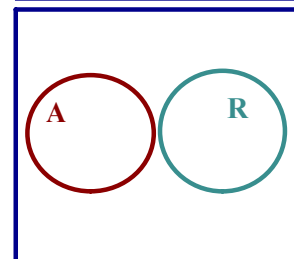
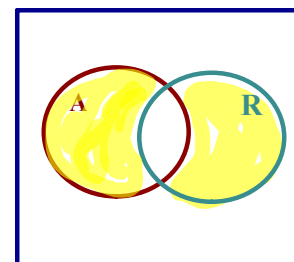
Shade (A & B)
in both A and B



Shade (A or B)
in either A or B or both



Mutually Exclusive:
no common outcome(s)



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