

Spring 2021

Math 3307 Test 1

NAME:

5 point penalty for no name

Fill out in black or dk blue ink. Make sure it's legible, right side up, in order and big enough to see.

Use this form please. If you don't, then put the problem points on each problem. Penalty if I have to look up the points; amount depends on how irritated you make me!

Open book, notes, and internet. No open mouth. No fair talking to anyone except your dog about the problems or answers. Ok, maybe your cat and your toddler, too.

Problem 1

20 points

At a teacher college in SE Texas, there are 4,000 students. 1,910 are males and 2,300 are 20 years old or younger. There are 910 who are male and more than 20 years old.

A Sketch a tree diagram of the student body.

How many students are female and more than 20 years old?

B. Sketch a Venn diagram of the student body.

Show on the diagram where the students are 20 or younger and male.

Problem 2

8 points

On June 21, 2011 we had gone 147 days with between $\frac{1}{4}$ " and $\frac{1}{2}$ " of rain. The previous record is 93 days. What is the percent change in days with this little rain?

Problem 3

20 points

A car owner decided to check out his car's fuel efficiency. He kept records on mpg (miles per gallon) at each of his next 10 fill-ups. A chart of the data is below. The mean is 23.3 and the standard deviation is 2.9. What are the median, mode, Q1, and Q3 for this data? What is the z score for 17 mpg? Describe this distribution from a histogram that you sketch. What does the shape tell you?

MPG	# of fill-ups
17	1
22	4
24	2
25	1
27	1
28	1

Problem 4

15 points

Here are the class participation grades for Math 3303 last year...the data are already in order smallest to largest.

Make a box and whisker plot of the grades. Use fences and show any outliers with an asterisk

Participation	21
Grades	22
9	22
17	22
20	23
20	24
21	24
21	26

A.

You have just been hired to determine the programming for Channel 8. When selecting the shows to be shown on Monday night, you find you have 27 shows to choose from and you can only show 4 of them. Because of lean-in effects the order of the shows really matters. How many different sequence of the 4 show are possible when 27 shows are available?

Is this a combination or a permutation?

B

The Board of Regents at UH has 9 members. Each year they elect a buildings and grounds committee, how many different 3-person committees are possible?

Is this a combination or a permutation

C

The Board of Regents at UH has 9 members. If the Board were selecting officers for the whole board: a Chairman, Vice-chairman, Secretary, and Treasurer, how many different slates of candidates are possible?

Is this a combination or a permutation?

Extra Credit Question – 8 points

Comparing heights:

Michael Jordan is 78 inches tall while Rebecca Lobo is 76 inches tall.

NBA men have an average height of 69 inches with a standard deviation of 2.8 inches

WNBA women have an average height of 63.6 with a standard deviation of 2.5 inches

Compare their heights and figure out who is taller in their respective populations.