

Take Home Make up for First Exam for MTH 23

October 12, 2017
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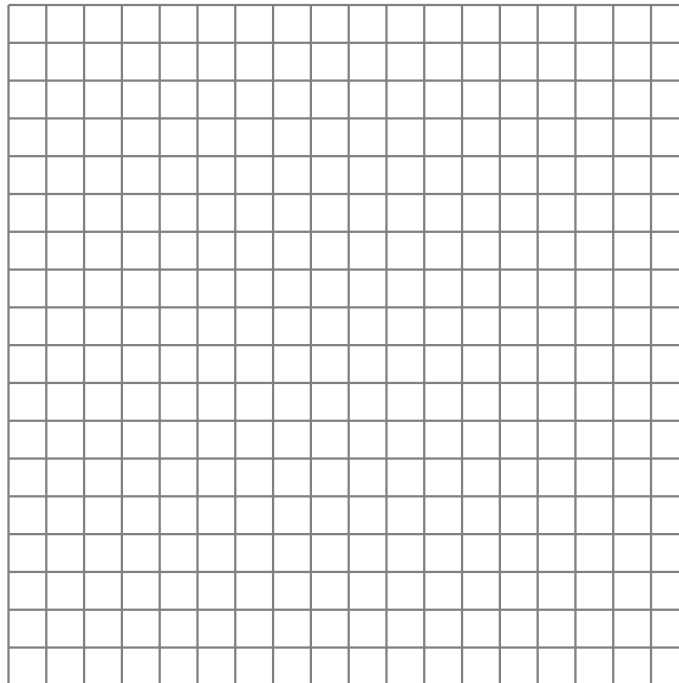
Due Date: Tuesday October 17, 2017

1. A random sample of 30 heights (in hundredths of inches, 100 = 1 inch) from a population is given below:

6578	7151	6939	6821	6778
6869	6980	7001	6790	6678
6648	6762	6830	6711	6827
7109	6646	6864	7123	6713
6783	6887	6348	6842	6762
6720	7084	6749	6653	6544

- (a) Construct a frequency table for the above data, listing the class limits, the class boundaries, the class midpoint, the frequency and the relative frequency. Use five classes.
- (b) Draw a histogram for the frequency table in Part (a).

You can use the following grid:



2. For the following data

47 59 50 56 56 51 53 57 52 49

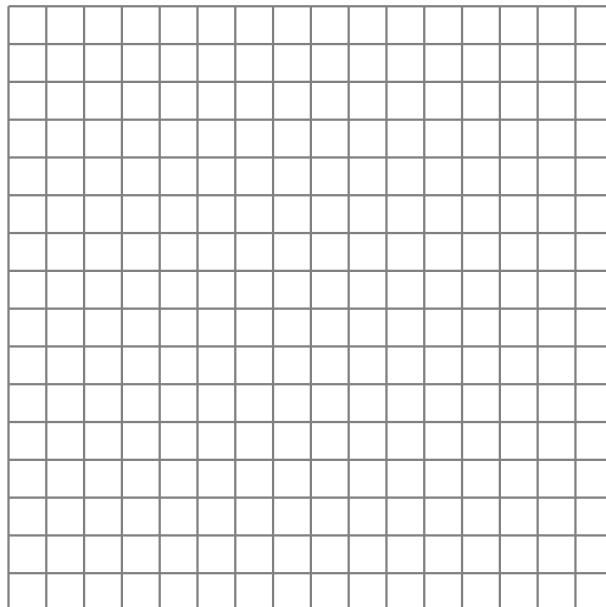
calculate:

- The sample mean.
 - The sample standard deviation.
 - The range.
 - The median.
 - The mode
 - The first and third quartiles.
3. Let x be the age of a bighorn sheep (in years) and y the mortality rate (percent that dies) for that age group. So for example, if $x = 1$, then $y = 14.0$ and that means that 14% of bighorn sheep between 1 and 2 years old died. A random sample of Arizona bighorn sheep gave the following information:

x	1	2	3	4	5
y	14.0	18.9	14.4	19.6	20.0

- Draw a scatter diagram.
- Find the equation of the least square regression line and plot it in the same graph you used in part (a).
- Find the correlation coefficient r .

You can use the following grid



4. Two cards are drawn from a standard 52-card deck, one after the other, *with replacement*, that is, after the first card is drawn we put it back, reshuffle, and then draw the other. Let A be the event "The first card is black", and B be the event "The second card is red".
- Are the event A and B independent?
A. Yes B. No
 - Find the probability $P(A \text{ and } B)$.
 - Find the probability $P(A \text{ or } B)$.
5. Two cards are drawn from a standard 52-card deck, one after the other, *without replacement*, that is, after the first card is drawn we put it aside and then draw the other. Let A be the event "The first card is black", and B be the event "The second card is red".
- Are the event A and B independent?
A. Yes B. No
 - Find the probability $P(A \text{ and } B)$.
 - Find the probability $P(A \text{ or } B)$.
6. The breakdown of the student body in a class according to race/ethnicity and gender is shown in the table below:

	White	Black	Hispanic	Asian	Other	Total
Male	25	12	6	3	1	47
Female	26	15	5	3	4	53
Total	51	27	11	6	5	100

A student is randomly selected from this class. (To select "randomly" means that every student has the same chance of being selected.) Find the probabilities of the following events:

- The selected student is Female.
- The selected student is Hispanic **or** Black.
- The selected student is an Asian Male.
- The selected student is Asian **or** Male.
- The selected student is **not** Other.
- The selected student is Black **given** that she is Female.
- The selected student is Female **given** that they are Black.
- The selected student is White **or** Male.