QUIZIZZ KEY

NAME : _____

CLASS : _____

AP Statistics Exploring 1-Variable Data
18 Questions

DATE : _____

1. Many professional schools require applicants to take a standardized test. Suppose that 1000 students take such a test. Several weeks after the test, Pete receives his score report; he got a 63, which placed him at the 73rd percentile. This means that

A Pete did worse than about 73% of test takers

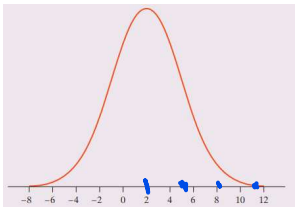
B Pete did worse than about 63% of test takers

C Pete's score was below the median

D Pete did better than about 73% of test takers

See definition of percentile

E Pete did better than about 63% of test takers.

2. 

For the Normal distribution shown, the standard deviation is closest to

A 3

B 1

C 5

D 2

E 0

3 standard deviations fit here.

2+3=5 5+3=8 8+3=11

3. Rainwater was collected in water collectors at 30 different sites near an industrial complex, and the amount of acidity (pH level) was measured. The mean and standard deviation of the values are 4.60 and 1.10, respectively. When the pH meter was recalibrated back at the laboratory, it was found to be in error. The error can be corrected by adding 0.1 pH units to all of the values and then multiplying the result by 1.2. The mean and standard deviation of the corrected pH measurements are

mean sd

(4.60+.1)(1.2)=5.64

(1.10)(1.2) = 1.32

A 5.64, 1.32

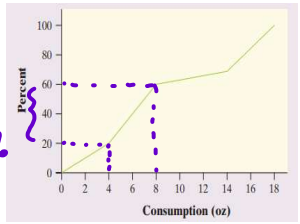
B 5.64, 1.44

C 5.64, 1.20

D 5.40, 1.44

E 5.40, 1.32

* Adding .1 to each data value does not affect standard deviation

4. 

60-20 =40%

The figure shows a cumulative relative frequency graph of the number of ounces of alcohol consumed per week in a sample of 150 adults who report drinking alcohol occasionally. About what percent of these adults consume between 4 and 8 ounces per week?

Zoom in to see graph

A 40%

B 80%

C 60%

D 20%

E 50%

5. The average yearly snowfall in Chillyville is Normally distributed with a mean of 55 inches. If the snowfall in Chillyville exceeds 60 inches in 15% of the years, what is the standard deviation?

⇒ 85% of the years the snowfall is ≤ 60

So 60 is the 85th percentile

A 6.04 inches

B The standard deviation cannot be computed from the given information.

TI-Nspire inverse normal

Area .85

μ 0

σ 1

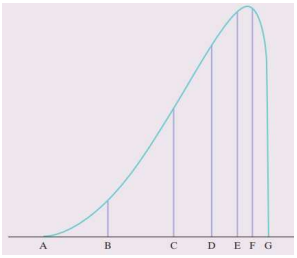
C 8.93 inches

D 4.83 inches

E 5.18 inches

Gives us $z = 1.03643$ (60 inches is 1.03643 standard deviations above the mean)

$z = \frac{x-\mu}{\sigma} \Rightarrow 1.03643 = \frac{60-55}{\sigma} \Rightarrow 1.03643 = \frac{5}{\sigma} \Rightarrow \sigma = \frac{5}{1.03643} \approx 4.83$

6. 

The figure shown is the density curve of a distribution. Seven values are marked on the density curve. Which of the following statements is true?

A The 3rd quartile of the distribution is D.

B The mean of the distribution is E.

C The median of the distribution is C.

D The median is D and the mean is C

E The area between A and B is 0.50.

Left skewed ⇒ mean < median
D appears to be the median because 50% of the area is to the left of it, and 50% is to the right

7. Which of the following is *not* correct about a standard Normal distribution?

A The proportion of scores that satisfy z < -1 is 0.1587.

B The proportion of scores that satisfy z > 3 is 0.9938. X

The proportion of scores more than 3 standard deviations above the mean is close to 0.

C The proportion of scores that satisfy z > 1 is 0.1587.

D The proportion of scores that satisfy z < 0 is .5

8. Until the scale was changed in 1995, SAT scores were based on a scale set many years ago. For Math scores, the mean under the old scale was 470 and the standard deviation was 110. In 2009, the mean was 515 and the standard deviation was 116. What is the standardized score (z-score) for a student who scored 500 on the old SAT scale?

A 0.13

B -0.13

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

$z = \frac{500-470}{110}$

C -30

D -0.27

E 0.27

9. Until the scale was changed in 1995, SAT scores were based on a scale set many years ago. For Math scores, the mean under the old scale was 470 and the standard deviation was 110. In 2009, the mean was 515 and the standard deviation was 116. Gina took the SAT in 1994 and scored 500. Her cousin Colleen took the SAT in 2013 and scored 530. Who did better on the exam, and how can you tell?

A The two cousins did equally well - their z-scores are the same.

B Colleen her standardized score is higher than Gina's.

C Gina- her standardized score is higher than Colleen's.

D Colleen - she scored 30 points higher than Gina.

E Gina - the standard deviation was bigger in 2013.

Old SAT: $\mu = 470$, $\sigma = 110$

New SAT: $\mu = 515$, $\sigma = 116$

Gina: $z = \frac{500-470}{110} = .27$

Colleen $z = \frac{530-515}{116} = .13$

10. You record the age, marital status, and earned income of a sample 1463 women. The number and type of variables you have recorded is

A 3 quantitative, 0 categorical

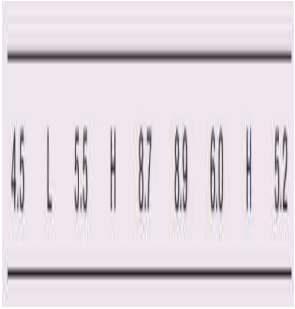
B 4 quantitative, 0 categorical

C 2 quantitative, 2 categorical

D 2 quantitative, 1 categorical

E 3 quantitative, 1 categorical

numeric
age
income
marital status

11. 

Earthquake intensities are measured using a device called a seismograph, which is designed to be most sensitive to earthquakes with intensities between 4.0 and 9.0 on the Richter scale. The image provided has measurements from nine earthquake readings, where L indicates the earthquake had an intensity below 4.0, and and H indicates that the earthquake had an intensity above 9.0. The median earthquake intensity of the sample is

A 8.70

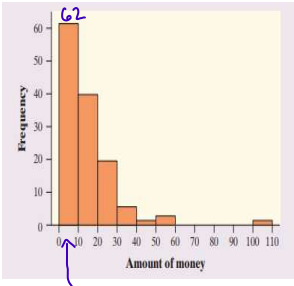
B 6.00

C 5.75

D Cannot be determined

E 6.47

we are told L < 4
we are told H > 9
L 4.5 5.2 5.5 6.0 8.7 8.9 H H
median

12. 

In a statistics class with 136 students, the professor records how much money (in dollars) each student has in his or her possession during the first class of the semester. Based on the histogram, the percentage of students with less than $10 in their possession is closest to

A 45%

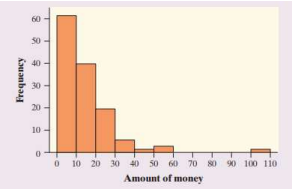
$\frac{62}{136} \approx .45$

B 60%

C 35%

D 70%

E 30%

13. 

In a statistics class with 136 students, the professor records how much money (in dollars) each student has in his or her possession during the first class of the semester. Which of the following statements about this distribution is *not* correct?

A The histogram is unimodal.

B The median is less than $20

C The IQR is $35

D The mean is greater than the median.

E The histogram is right-skewed.

IQR = Q3 - Q1. We cannot know exactly what it is. Q1 is between 0 and 10 (it is in the 1st bar), Q3 is in the 2nd bar and is between 10 and 20. The largest the IQR could be is 20-0=20

14.

0	28
1	2245
2	01333358889
3	001356679
4	22444466788
5	000

Forty students took a statistics examination having a maximum of 50 points. The score distribution is given in the stem-and-leaf plot. The third quartile of the score distribution is equal to

The median is between the 20th and 21st score. Q3 is between the 30th and 31st score.

A 43

B 45

C 32

D 44

E 23

15. The mean salary of all female workers is $35,000. The mean salary of all male workers is $41,000. What must be true about the mean salary of all workers?

A It must be larger than $38,000

B It cannot be larger than $40,000

C It could be any number between $35,000 and $41,000

D It must be larger than the median salary

E It must be $38,000

We don't know the number of male and female workers

Mostly female → close to $35K

Mostly male → close to $41K

16. 

Response?	Business size: Small	Medium	Large
Yes	125	81	40
No	75	119	160

A survey was designed to study how business operations vary according to their size. Companies were classified as small, medium, or large. Questionnaires were sent to 200 randomly selected businesses of each size. Because not all questionnaires were returned, researchers decided to investigate the relationship between the response rate and the size of the business. What percent of all small companies receiving questionnaires responded?

125 out of 200 total responded

A 12.5%

B 33.3%

C 50.8%

D 62.5%

E 20.8%

17. 

Response?	Business size: Small	Medium	Large
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No	75	119	160

A survey was designed to study how business operations vary according to their size. Companies were classified as small, medium, or large. Questionnaires were sent to 200 randomly selected businesses of each size. Because not all questionnaires were returned, researchers decided to investigate the relationship between the response rate and the size of the business. Which of the following conclusions seems to be supported by the data?

A Overall, more than half of companies responded to the survey.

B There are more small companies than large companies in the survey.

C If we combined the medium and large companies, then their response rate would be equal to that of the small companies.

D Exactly the same number of companies responded or didn't respond.

more "yes" than "no"

more "no" than "yes"

E Small companies appear to have a higher response rate then medium or large companies.

18. The average score on a history exam was 55, with a standard deviation of 14. The instructor chose to add 10 points to each score. The mean and standard deviation of the resulting scores were

mean increases by 10. Standard deviation does not change.

A The mean and standard deviation remain unchanged

B mean 65, standard deviation 14

C mean 65, standard deviation 24

D mean 55, standard deviation 24

E Cannot be determined with the information given

Answer Key

1. d	2. a	3. a	4. a
5. d	6. d	7. b	8. e
9. c	10. d	11. b	12. a
13. c	14. d	15. c	16. d
17. e	18. b		