

Name: _____ Class: _____ Date: _____

Chapter 01 - Discretionary Expenses

1. Your income before all taxes are deducted is your disposable income.

- a. True
- b. False

ANSWER: False

RATIONALE: Your income before all taxes are deducted is your gross income.

POINTS: 1

QUESTION TYPE: True / False

HAS VARIABLES: False

DATE CREATED: 1/23/2017 11:46 PM

DATE MODIFIED: 2/8/2017 5:54 AM

2. A discretionary expense is one that can't be eliminated from your day-to-day life.

- a. True
- b. False

ANSWER: False

RATIONALE: An essential expense is one that can't be eliminated from your day-to-day life.

POINTS: 1

QUESTION TYPE: True / False

HAS VARIABLES: False

DATE CREATED: 1/23/2017 11:50 PM

DATE MODIFIED: 2/7/2017 5:46 AM

3. When considering measures of central tendency, the presence of outliers would indicate that the mean may not be a good representation.

- a. True
- b. False

ANSWER: True

POINTS: 1

QUESTION TYPE: True / False

HAS VARIABLES: False

DATE CREATED: 1/24/2017 12:13 AM

DATE MODIFIED: 2/7/2017 5:46 AM

4. When a correlation coefficient is near 1, there is little or no correlation between corresponding variables.

- a. True
- b. False

ANSWER: False

RATIONALE: A correlation coefficient near 1 is a strong correlation; a value near 0 indicates little or no correlation.

POINTS: 1

QUESTION TYPE: True / False

HAS VARIABLES: False

DATE CREATED: 1/24/2017 12:14 AM

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DATE MODIFIED: 2/7/2017 5:46 AM

5. If a collection of data does not have any values that occur more than once, it is considered bimodal.

- a. True
- b. False

ANSWER: False

RATIONALE: A collection of data is considered bimodal if there are multiple values that have more occurrences than any of the other values.

POINTS: 1

QUESTION TYPE: True / False

HAS VARIABLES: False

DATE CREATED: 1/24/2017 12:18 AM

DATE MODIFIED: 2/7/2017 5:46 AM

6. The equation of the linear regression line of the scatterplot defined by these points: (1, 45), (2, 35), (3, 20), (4, 5) is $y = -13.5x + 60$.

- a. True
- b. False

ANSWER: True

POINTS: 1

QUESTION TYPE: True / False

HAS VARIABLES: False

DATE CREATED: 1/24/2017 12:20 AM

DATE MODIFIED: 2/7/2017 5:47 AM

7. A scatterplot is graphed with the time it takes a child to get dressed in the morning on the horizontal axis, and the child's age in years on the vertical axis. The graph shows a negative correlation because the time decreases as the age of the child increases.

- a. True
- b. False

ANSWER: True

POINTS: 1

QUESTION TYPE: True / False

HAS VARIABLES: False

DATE CREATED: 1/24/2017 12:51 AM

DATE MODIFIED: 2/11/2017 4:08 AM

8. Rebecca will be entering college next fall and is trying to decide how much to spend on a laptop. After researching models online, she has found several that would meet her needs. Their costs are: \$979; \$1,349; \$1,279; \$1,349; \$1,899; \$2,049; \$875; and \$1,099. She determined the median to be \$1,359.

- a. True
- b. False

ANSWER: False

RATIONALE: The median is the average of the two prices in the middle when placed in ascending order.

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$$(1,279 + 1,349)/2 = \$1,314.$$

POINTS: 1
 QUESTION TYPE: True / False
 HAS VARIABLES: False
 DATE CREATED: 1/24/2017 12:54 AM
 DATE MODIFIED: 2/22/2017 3:15 PM

9. A frequency distribution is a table that displays each possible value and the number of times that value occurs.
 a. True
 b. False

ANSWER: True
 POINTS: 1
 QUESTION TYPE: True / False
 HAS VARIABLES: False
 DATE CREATED: 1/24/2017 12:55 AM
 DATE MODIFIED: 2/7/2017 5:50 AM

10. Sigma notation for determining median of 15 values is $15 \sum_{i=1}^{15} x_j$.

a. True
 b. False
 ANSWER: False

RATIONALE: Sigma notation for determining the mean of 15 values is $\frac{\sum_{i=1}^{15} x_j}{15}$.

POINTS: 1
 QUESTION TYPE: True / False
 HAS VARIABLES: False
 DATE CREATED: 1/24/2017 12:57 AM
 DATE MODIFIED: 2/7/2017 5:54 AM

11. Marsha was shopping for a new dishwasher and researched the different models she could afford. Using Marsha’s frequency distribution table, determine the median price for dishwashers.

Price,p(\$)	Frequency,f
250	2
275	4
280	1
290	2
310	6
315	2
320	1

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325	7
330	1
335	1
340	1
350	2

- a. \$317.50 b. \$325.00
 c. \$312.50 d. \$308.33

ANSWER: c

RATIONALE: The 15th and 16th values are 310 and 315, and their average is \$312.50.

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

DATE CREATED: 1/24/2017 1:08 AM

DATE MODIFIED: 2/11/2017 4:11 AM

12. Examine the frequency table below for prices to replace a dishwasher. What is the percentile rank of dishwashers that cost \$325?

Price, p(\$)	Frequency, f
250	2
275	4
280	1
290	2
310	6
315	2
320	1
325	7
330	1
335	1
340	1
350	2

- a. 83% b. 23%
 c. 60% d. 17%

ANSWER: a

RATIONALE: The percentage of dishwashers at or below \$325 is 25 out of 30 or $(25/30) \cdot 100$

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

DATE CREATED: 1/24/2017 2:01 AM

DATE MODIFIED: 2/11/2017 4:12 AM

13. McKenzie found the correlation coefficient on a set of data to be -0.20 . Which term best describes the correlation?

- a. Strong positive b. Strong negative
 c. Weak positive d. Weak negative

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ANSWER: d
RATIONALE: A negative number indicates negative, and a number close to 0 indicates weak.
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
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DATE MODIFIED: 2/11/2017 4:28 AM

14. Which column in a frequency distribution table is an indicator of which percentile each of the possible values falls in?
 a. Frequency b. Relative cumulative frequency
 c. Cumulative frequency d. Relative frequency

ANSWER: b
RATIONALE: Relative cumulative frequency is a count of all possible values in a data collection at or below a certain value divided by the number of elements in the data collection. When multiplied by 100, this gives a percentile rank.
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
DATE CREATED: 1/24/2017 5:50 AM
DATE MODIFIED: 2/11/2017 4:29 AM

15. What is the most commonly used measure of dispersion?
 a. Range b. Mean deviation
 c. Standard deviation d. Variance

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
DATE CREATED: 1/24/2017 5:54 AM
DATE MODIFIED: 2/11/2017 4:30 AM

16. What is the standard deviation for the following frequency distribution?

Price,p(\$)	Frequency,f
250	2
275	3
280	1
290	2
310	6
315	3
320	1
325	6
330	1

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335	2
340	1
350	2

- a. \$24.17 b. \$25.72
 c. \$19.67 d. \$661.67

ANSWER: b

RATIONALE:
$$\frac{\sum_{i=1}^{30} (x_i - \bar{x})^2}{30}$$

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

DATE CREATED: 1/24/2017 5:56 AM

DATE MODIFIED: 2/11/2017 4:32 AM

17. In the ordered pairs, the first coordinate is the price, p , and the second is the quantity, q : (250, 5,000), (100, 8,500), (450, 2,000), (300, 5,000), (200, 4,750). When the points are plotted in a scatterplot, what is the correlation coefficient?

- a. -0.93 b. -0.87
 c. -0.83 d. -0.73

ANSWER: a

RATIONALE: Use the statistics function to input the values and find r .

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

DATE CREATED: 1/24/2017 6:25 AM

DATE MODIFIED: 2/11/2017 4:32 AM

18. Which is the regression equation for a scatterplot with these points rounded to the nearest tenth: (4, 35), (6.5, 92), (2, 10), (5, 50), (6, 85), (10, 110)?

- a. $y = -11.1x + 9,376.90$ b. $y = -13.4x + 8,432.27$
 c. $y = 11.1x - 13.4$ d. $y = 13.4x - 11.1$

ANSWER: d

RATIONALE: Use the statistics function to input the values. Write the equation in the form $y = mx + b$.

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

DATE CREATED: 1/24/2017 6:27 AM

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19. The results of a recent survey showed that the average cost to rent a car for a week is \$276. If the standard deviation

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is \$60, find the z-score for a weekly rental of \$423.00?

- a. 7.05 b. 2.45
- c. 4.6 d. -1.88

ANSWER: b

RATIONALE:
$$z = \frac{x - \bar{x}}{s} = \frac{423 - 276}{60} = 2.45$$

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

DATE CREATED: 1/24/2017 6:29 AM

DATE MODIFIED: 2/11/2017 4:35 AM

20. Maxine works at an amusement park. She recorded the number of ice cream cones sold each day, along with the high temperature in Fahrenheit degrees. Using her data, she wrote a linear regression equation of $y = 9x - 487$. If the temperature, or x , is 85°F , how many ice cream cones could Maxine expect to sell?

- a. 245 b. 278
- c. 753 d. 765

ANSWER: b

RATIONALE: $9(85) - 487 = 278$

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

DATE CREATED: 1/24/2017 6:36 AM

DATE MODIFIED: 2/11/2017 4:35 AM

21. Mr. Joseph recently received a notice that his average gas and electric bill would increase at the beginning of the year. He went online to see the amount of his last 12 bills. If his average bill over the past 12 months goes up 17%, what can he expect to pay on average next year?

10/6/2016	\$213.78
9/7/2016	\$252.26
8/8/2016	\$260.29
7/8/2016	\$230.37
6/8/2016	\$199.78
5/9/2016	\$169.48
4/8/2016	\$184.19
3/9/2016	\$280.08
2/9/2016	\$287.55
1/11/2016	\$551.51
12/8/2015	\$226.03
11/5/2015	\$174.23

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ANSWER:
$$\frac{1}{12} \sum_{i=1}^{12} x_i = \frac{3,029.55}{12} = \$252.46$$

$$252.46 \cdot 1.17 = \$295.38$$

POINTS: 1
 QUESTION TYPE: Subjective Short Answer
 HAS VARIABLES: False
 DATE CREATED: 1/24/2017 6:45 AM
 DATE MODIFIED: 2/11/2017 4:36 AM

22. The Learners just got a notification about their past 4 months of gas and electric bills stating that the average for the winter months was \$393.46. Mr. Learner remembered that it was cold in January, but was unable to find his bill for that month. Using what you know about measures of central tendency, help Mr. Learner calculate what his January gas and electric bill must have been.

\$327.69	3/9/2016
\$336.43	2/9/2016
???????	1/11/2016
\$264.46	12/8/2015

ANSWER:
$$\frac{327.69 + 336.43 + x + 264.46}{4} = 393.46$$

$$928.58 = 1,573.84 + x$$

$$x = 645.26$$

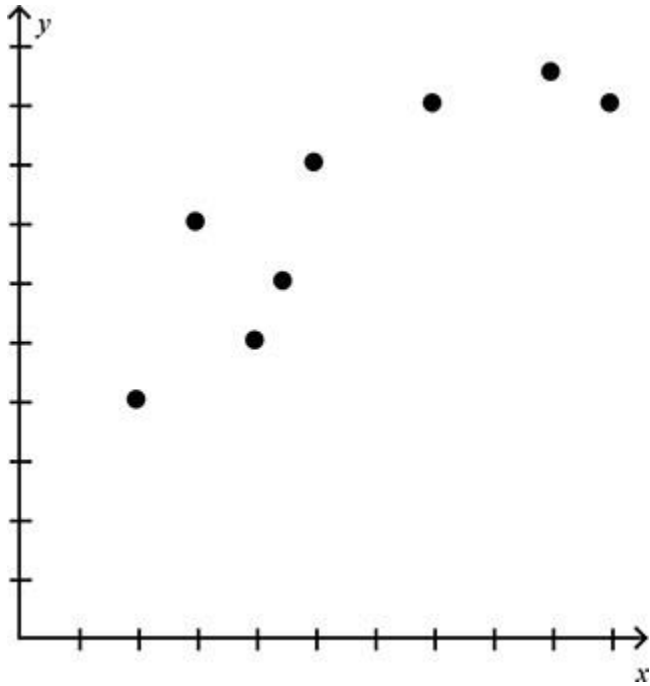
POINTS: 1
 QUESTION TYPE: Subjective Short Answer
 HAS VARIABLES: False
 DATE CREATED: 1/24/2017 6:53 AM
 DATE MODIFIED: 2/11/2017 4:37 AM

23. What kind of data does a scatterplot use?

ANSWER: Bivariate data
 POINTS: 1
 QUESTION TYPE: Subjective Short Answer
 HAS VARIABLES: False
 DATE CREATED: 1/24/2017 7:03 AM
 DATE MODIFIED: 2/11/2017 4:38 AM

24. Does the graph below have a positive, a negative, or no correlation?

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ANSWER: Positive

POINTS: 1

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

DATE CREATED: 1/24/2017 7:16 AM

DATE MODIFIED: 2/11/2017 5:02 AM

25. Catalina’s mother recorded her height each year. The table below shows her height, in inches.

Age	Height (in.)
5	36
6	40
7	42
8	47
9	50

Find the equation of the regression line.

ANSWER: $y = 3.5x + 18.5$

POINTS: 1

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

DATE CREATED: 1/24/2017 7:19 AM

DATE MODIFIED: 2/11/2017 4:41 AM

26. The American Medical Association took the resting pulse rate of all the doctors at a local hospital and published this frequency distribution. What percentile is a resting pulse of 79 beats per minute?

Resting Pulse	Frequency
60-64	2

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65-69	7
70-74	11
75-79	15
80-84	10
85-89	9
90-94	6
95-99	3

ANSWER: There are 63 doctors whose pulse was measured. Thirty-five of them had a pulse at or below 79. Therefore, the percentile for a heart rate of 79 is $(35/63)*100 = 55.56\%$.

POINTS: 1

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

DATE CREATED: 1/24/2017 7:20 AM

DATE MODIFIED: 2/11/2017 4:41 AM

27. Victor found five cars online that he will go and see. The prices of the cars are: \$5,000; \$4,500; \$5,500; \$3,999; and \$4,999. To save time, he only wants to see cars that are within one standard deviation of the mean. How many cars will he see?

ANSWER: Three cars are between \$4,289.46 and \$5,309.74.

$$\bar{x} = \frac{\sum_{i=1}^5 x_i}{5} = \$4,799.60$$

$$\sqrt{\frac{\sum_{i=1}^5 (x_i - \bar{x})^2}{5}} = 510.14$$

$$4,799.60 - 510.14 = 4,289.46$$

$$4,799 + 510.14 = 5,309.74$$

POINTS: 1

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

DATE CREATED: 1/24/2017 7:25 AM

DATE MODIFIED: 2/11/2017 4:42 AM

28. Pamela called nine repair shops for quotes for auto repairs. The prices are \$139, \$150, \$345, \$99, \$167, \$155, \$140, \$200, and \$160. She thinks there is a chance that there is an outlier and the data may be skewed. Which measure of central tendency should she choose and what value would that be?

ANSWER: The median is resistant to extreme numbers, so Pamela should put the numbers in ascending order and choose the one in the middle. 99, 139, 140, 150, 155, 160, 167, 200, 345. The auto repair quote in the middle is \$155.

POINTS: 1

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

DATE CREATED: 1/24/2017 7:33 AM

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29. Pamela called nine repair shops for quotes for auto repairs and pick the quote closest to the mean. The prices are \$139, \$150, \$345, \$99, \$169, \$155, \$140, \$200, and \$160. She heard that data collections that are normally distributed will have 95% of its values within 2 standard deviations of the mean and wants to remove any quotes outside of that mark before determining a revised average that will help her make a decision. What is the mean price quote for 95% of the auto repairs that are within 2 standard deviations of the mean?

ANSWER: Pamela should discount the \$345 quote because it is not between \$41.22 and \$304.78 and determine the mean of the other eight values, which is \$151.50. Pamela will take her car to the repair shop that quoted \$150.00.

$$\bar{x} = \frac{\sum_{i=1}^9 x_i}{9} = \$173$$

$$\sqrt{\frac{\sum_{i=1}^9 (x_i - \bar{x})^2}{9}} = 65.89$$

$$173 - 2 \cdot 65.89 = 41.22$$

$$173 + 2 \cdot 65.89 = 304.78$$

$$\bar{x} = \frac{\sum_{i=1}^8 x_i}{8} = \$151.50$$

POINTS: 1

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

DATE CREATED: 1/24/2017 7:35 AM

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30. Nancy works at a health club. She notices that the clients who run on the track for a longer period of time go a longer distance. If this is a causal relationship, explain the explanatory and response variables.

ANSWER: The explanatory variable is the time on the track, and the response variable is the distance traveled.

POINTS: 1

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

DATE CREATED: 1/25/2017 1:43 AM

DATE MODIFIED: 2/11/2017 4:55 AM

31. The mean for Mr. Foster's Financial Algebra test was 70, and the standard deviation was 4.2. Ms. Helmer's mean for her test was 35, and the standard deviation was 5.7. Two friends were arguing about which did better on the test. Becky got a 78 on Mr. Foster's test, whereas Erin got a 45 on Ms. Helmer's test. Help settle the argument.

ANSWER: Becky's z-score was higher than Erin's, meaning she scored higher than 97.13% of the students taking the same test as her, whereas Erin scored higher than 95.54% of the students taking the same test that she did.

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$$\text{Becky's } z\text{-score} = \frac{78 - 70}{4.2} = 1.90$$

$$\text{Erin's } z\text{-score} = \frac{45 - 35}{5.7} = 1.75$$

Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911
2.4	0.9918	0.9920	0.9922	0.9924	0.9927	0.9929	0.9931	0.9932
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949
2.6	0.9953	0.9955	0.9956	0.9957	0.9958	0.9960	0.9961	0.9962
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985

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POINTS: 1

QUESTION TYSubjective Short Answer

PE:

HAS VARIABL False

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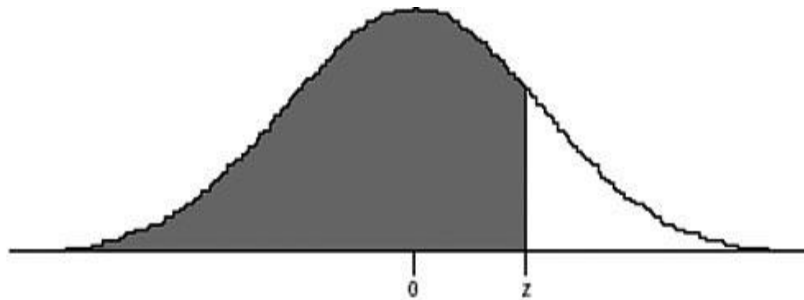
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ED:

32. Robert heard that there 78 different apartments in the part of New York City he is considering moving to. The mean rental price is \$1,800 with a standard deviation of \$200. He is assuming his data is normally distributed and wants to know how many apartments he will have to look at if his goal rental price is \$1,500. Use the standard distribution table to help Robert narrow down his search to apartments priced under \$1,500.

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Normal Deviate										
z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-4.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
-3.9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
-3.8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
-3.7	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
-3.6	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
-3.5	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
-3.4	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002
-3.3	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003
-3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
-3.1	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007
-3.0	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010
-2.9	0.0019	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
-2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0019
-2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
-2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036
-2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
-2.4	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
-2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
-2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
-2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
-2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
-1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233
-1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
-1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
-1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
-1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
-1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681
-1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
-1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985
-1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170
-1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379
-0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611

Chapter 01 - Discretionary Expenses

33. Calvin is graduating and wants to get a job in a government agency. He has done some research and will interview with two different agencies. The first agency offers starting salaries with a mean of \$47,000 and a standard deviation of \$1,500. The second agency's average starting salary is also \$47,000, with a standard deviation of \$4,000. With which agency is Calvin more likely to start with an offer of \$52,000 per week or more?

ANSWER: At the first agency, a higher percentage of offers will be made below \$52,000 than the second agency. Conversely, more job offers will be made above \$52,000 at the second agency.

$$\text{First agency's } z\text{-score} = \frac{52,000 - 47,000}{1,500} = 3.33$$

$$\text{Second agency's } z\text{-score} = \frac{52,000 - 47,000}{4,000} = 1.25$$

POINTS: 1

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

DATE CREATED: 1/25/2017 2:06 AM

DATE MODIFIED: 2/22/2017 3:33 PM

34. Stephen is starting a wine cellar but only wants to stock bottles in the top 10% of *Wine* magazine's ratings of 500 wines. The average rating given by the magazine was 72 with a standard deviation of 7.1. Use the standard distribution table to help Stephen discover what wine rating is necessary for a wine to be in the top 10%.

Chapter 01 - Discretionary Expenses

Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7853
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8829
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9014
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9439
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9544
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9858
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9915
2.4	0.9918	0.9920	0.9922	0.9924	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9958	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986

ANSWER:

If Stephen only wants to look at the top 10%, he wants a score in the 90th percentile, which means that 90% of the wines will fall below that mark. The probability closest to 0.90 in the standard normal table is associated with a z-score of 1.28. The data value associated with a z-score of 1.28 is 81.088. Stephen should focus on wines with a rating above 81.

Name: _____ Class: _____ Date: _____

Chapter 01 - Discretionary Expenses

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

$$1.28 = \frac{x - 72}{7.1}$$

$$1.28 \cdot 7.1 = x - 72$$

$$9.088 = x - 72$$

$$x = 81.088$$

POINTS: 1

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

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35. Sarah is a server at a restaurant and has been keeping track of the tips she receives. The smallest bill she received a tip for was \$24.44, and the largest bill was \$89.75. She used linear regression to model tips received (y) as a function of the restaurant bill (x). Using her data, she wrote a linear regression equation of $y = 0.22x - 0.27$. Sarah would really like to get a \$50 tip. Based on her linear regression equation, what would the restaurant bill have to be to lead to a \$50 tip? Would this calculation be considered interpolation or extrapolation?

ANSWER: To get a tip of \$50.00, the restaurant bill would have to be \$228.50. Since \$228.50 is not in the domain of the data Sarah collected, it would be considered extrapolation.

$$50 = 0.22x - 0.27$$

$$50.27 = 0.22x$$

$$x = \$228.50$$

POINTS: 1

QUESTION TYPE: Subjective Short Answer

HAS VARIABLES: False

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