

Brief Article

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Chapter 1

Workshops

Solution 1.1-1

all adults with normal vision.

Solution 1.1-2

the 1,347 teachers who mail back the questionnaire.

Solution 1.1-3

three

Solution 1.1-4

Rate of California is [1] 8.768816

Rate of Florida is [1] 23.75374

Rate of Illinois is [1] 10.39501

Rate of Nevada is [1] 42.45283

Therefore, Nevada has the highest number of death row prisoners.

Solution 1.1-5

Rate of Michelle's income is [1] -76.19048

Solution 1.1-6

[1] 78

is not equal to 100%.

Solution 1.1-7

A good choice of a graph would be a bar chart.

Solution 1.1-8

right skewed, mean, median.

Solution 1.1-9

counts or percents, mean, median.

Solution 1.1-10

Min. 1st Qu. Median Mean 3rd Qu. Max. -2.0000 0.0000 1.0000 0.8182 2.0000 3.0000

$Q_1 = 0$

Solution 1.2-1

Min. 1st Qu. Median Mean 3rd Qu. Max. 1.00 2.00 4.00 5.00 4.75 22.00

Therefore, $Q_3 = 5$

Solution 1.2-2

Therefore, $\text{IQR} = [1] \ 2.75$

Solution 1.2-3

Standard deviation would change.

Solution 1.2-4

The median will be larger than the mean if the distribution is left skewed.

Solution 1.2-5

You made an error in your calculations.

Solution 1.2-6

all the observations have the same value.

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Solution 1.2-7

The box in each box plot marks the range covered by the middle half of the data.

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Solution 1.2-8

mean of curve A is less than mean of curve B and standard deviation of curve A is less than standard deviation of curve B.

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Solution 1.3-1

The mean of the normal distribution is 50.

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Solution 1.3-2

The standard deviation of the normal distribution is 10.

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Solution 1.3-3

A number with 60 percent of the data above it is the 40th percentile.

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Solution 1.3-4

the standard deviation of the test scores is [1] 15

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Solution 1.3-5

$$P[-1 < z < 2] = P[z < 2] - P[z < -1] = [1] 0.8185946$$

—
Solution 1.3-6

$$P[\bar{x} > 12] \times 1000 = (1 - P[\bar{x} < 12]) \times 1000 = (1 - P[z < .5]) \times 1000 = [1] 308.5375$$

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Solution 1.3-7

So the median score on the exam is equal to 500.

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Solution 1.3-8

The percent of scores are higher is [1] 0.0249979

Solution 1.3-9

the proportion of exceptional students among male SAT takers is about [1] 0.02275013

Solution 1.4-1

The point estimate is [1] 0.4199605

Solution 1.4-2

The standard error of your estimate is [1] 0.01551468

Solution 1.4-3

The critical value is [1] 1.644854

Solution 1.4-4

The margin error of your estimate is [1] 0.02551937

Solution 1.4-5

The confidence interval is [1] 0.3944411 [1] 0.4454798

Solution 1.4-6

The point estimate is [1] 114.9

Solution 1.4-7

The standard error of your estimate is [1] 1.789786

Solution 1.4-8

The critical value is [1] 2.055529

Solution 1.4-9

The margin of error is [1] 3.678957

Solution 1.4-10

The 95% CI is [1] 111.221 [1] 118.579

Solution 1.5-1

The population parameter of interest is \$ [1] 8

Solution 1.5-2

The appropriate hypotheses are $H_0 : \mu = 8$ vs. $H_a : \mu \neq 8$

Solution 1.5-3

The test statistic is [1] 1.781538

Solution 1.5-4

The critical value is [1] -2.200985

Solution 1.5-5

Your conclusion is fail to reject H_0 .

Solution 1.5-6

Population parameter of interest is 128.

Solution 1.5-7

The appropriate hypotheses are $H_0 : \mu = 128$ vs. $H_a : \mu > 128$

Solution 1.5-8

The test statistic is [1] 2.321429

Solution 1.5-9

The critical value is [1] 1.317836

Solution 1.5-10

Your conclusion is reject H_0 in favor H_a

Solution 1.6-1

The appropriate hypotheses are $H_0 : \mu_1 = \mu_2$ vs. $H_a : \mu_1 \neq \mu_2$

Solution 1.6-2

The test statistic is [1] 2.043016

Solution 1.6-3

The critical value is [1] 1.724718

Solution 1.6-4

The correct conclusion is reject H_0 in favor H_a .

Solution 1.6-5

It will be concluded that the two methods of learning are not equal when they are.

Solution 1.6-6

The hypotheses are $H_0 : p_A = p_B$ vs. $H_0 : p_A > p_B$

Solution 1.6-7

The test statistic is [1] 1.871063

Solution 1.6-8

The critical value is

Solution 1.6-9

The the correct conclusion in reject H_0 in favor of H_a , since the test statistic (1.87) is greater than the critical value 1.645.

Solution 1.6-10

It will be concluded that brand A outsells brand B when it does not.

Solution 1.7-1

H_0 : the type of pharmacies and waiting time are independent vs. H_a : the type of pharmacies and waiting time are dependent.

Solution 1.7-2

The chi-square test statistic for this data is 20.937.

Solution 1.7-3

The critical value for chi-square is [1] 0.3518463

Solution 1.7-4

The type of pharmacies and waiting time are dependent.

Solution 1.7-5

The hypotheses are $H_0 : \mu_A = \mu_B = \mu_C = \mu_D$ vs. H_a : at least one of the population means is different.

Solution 1.7-6

the test statistic 4.302

Solution 1.7-7

The critical value at 5 percent level of significance is [1] 3.343889

Solution 1.7-8

Your conclusion at the 5 percent level of significance is to reject H_0 in favor of H_a since the test statistic (4.302) is greater than the critical value (3.3439).

Solution 1.7-9

The median assembly time for the group who attended training program C is the highest, followed by training program D, then A and B is the lowest.

Solution 1.7-10

The median assembly time for the group who attended training program C is the highest, followed by training program D, then A and B is the lowest.

Solution 1.8-1

7.3

Solution 1.8-2

The graph shows a clear negative association

Solution 1.8-3

The correlation coefficient is moderately negative.

Solution 1.8-4

We should put hours of TV on the horizontal axis of the scatterplot of the data because it is the explanatory (independent) variable.

Solution 1.8-5

You conclude that this is nonsense because correlation makes no sense here.

Solution 1.8-6

This tells us that taller than average fathers tend to have shorter than average sons.

Solution 1.8-7

Correlation coefficient between heights of fathers and heights of sons would be unchanged: equal to 0.52.

Solution 1.8-8

This means that the educator is confused because correlation makes no sense in this situation.

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Solution 1.8-9

The test score goes down 1.3 points.

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Solution 1.8-10

the correlation between hours studied and exam scores is [1] 0.9

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Solution 1.8-11

Tou predict that a person with lean body mass 50 kilograms will have metabolic rate equal to [1] 1458.2

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Solution 1.8-12

The slope of the regression line is [1] 26.9

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Solution 1.8-13

The percent prediction to be obese in 1998 is [1] 20.128

—
Solution 1.8-14

The percent of changes in municipal bonds performance that can be explained by the straight line relationship between municipal bonds and large cap stocks is [1] 45

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Solution 1.8-15

The correlation coefficient r between a player's salary and his position makes no sense.