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BNAL 206

Professor Markowski

November 26th, 2018

Graded Homework 3

1.

$$\bar{X} = 1150, 1250$$

$$\mu = 1200$$

$$\sigma = 300$$

$$n = 16$$

$$P(1150 \leq \bar{X} \leq 1250)$$

$$Z = \frac{1150 - 1200}{300 / \sqrt{16}} = -0.67$$

$$Z = 0.2514$$

$$Z = \frac{1250 - 1200}{300 / \sqrt{16}} = 0.67$$

$$Z = 0.7486$$

$$0.7486 - 0.2514 = 0.4972$$

The probability that the mean of the yearly dental claims for this sample is between \$1,150 and \$1,250 is 0.4972.

2.

$$P = .04 \text{ (4\%)}$$

$$\pi = .06 \text{ (6\%)}$$

$$n = 80$$

$$\begin{aligned} Z &= \frac{.04 - .06}{\sqrt{\frac{.06(1 - .06)}{80}}} = -0.75 \\ &= 0.2266 \end{aligned}$$

The probability that the percentage of delayed flights is less than 4 is 0.2266.

3

A.

Results for: SILVERSPRING.MTW

One-Sample T: Assessed Value

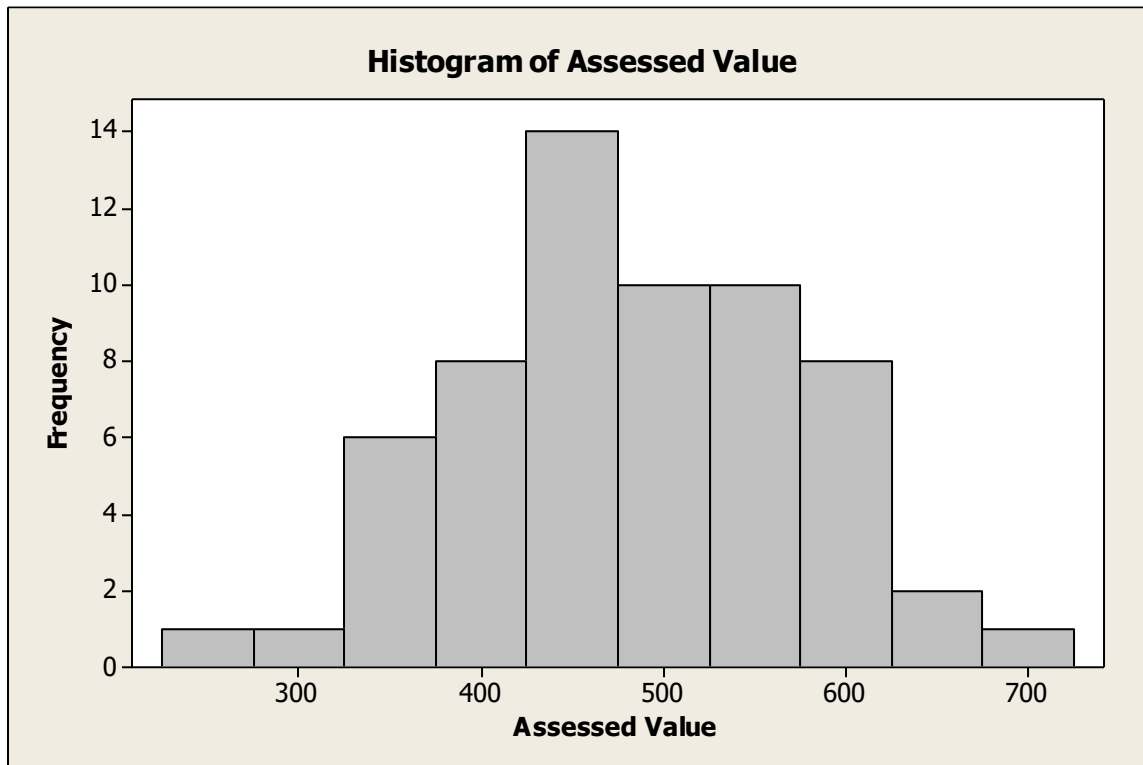
Variable	N	Mean	StDev	SE Mean	95% CI
Assessed Value	61	481.7	90.1	11.5	(458.6, 504.8)

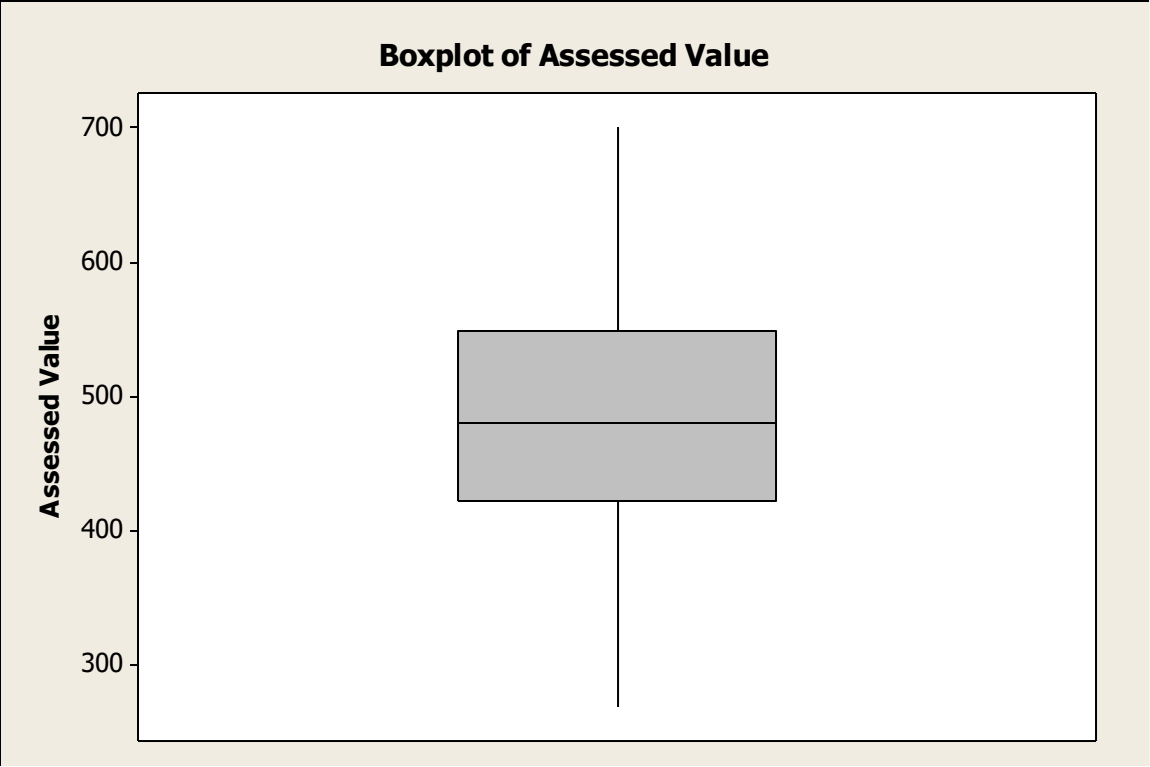
B. The 95% confidence interval results show that with 95% confidence the population mean assessed value for all homes within these zip codes is approximately between \$458.6 and \$504.8 thousand dollars.

C. Margin of error: $(504.8 - 458.6) / 2 = 2.31$

D.

I believe the shape is not highly skewed. The box plot and histogram show a more of a symmetric shape.





Stem-and-Leaf Display: Assessed Value

Stem-and-leaf of Assessed Value N = 61
Leaf Unit = 10

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1      2      6
4      3      034
12     3      66667789
22     4      1122233334
(15)   4      555556667788899
24     5      0012333444
14     5      5567889999
4      6      12
2      6      6
1      7      0
```

4

A.

One-Sample T: Age

Variable	N	Mean	StDev	SE Mean	95% CI
Age	61	54.33	17.20	2.20	(49.92, 58.73)

The 95% confidence interval for the mean age of all houses in these zip codes is approximately 49.92 to 58.73.

B.

Test and CI for One Proportion: Central A/C

Event = 1

Variable	X	N	Sample p	95% CI
Central A/C	48	61	0.786885	(0.684120, 0.889650)

Using the normal approximation.

The 95% confidence interval for the proportion of all houses with central AC is approximately 0.684120 to 0.889650.

C.

Margin of error: $(0.889650 - 0.684120)/2 = 0.102765$