Answer the following problem by typing your answer. Express your answer in 2 decimal places.

1. The mean scores of a random sample of 17 students who took a special test is 83.5. If the standard deviation of the scores is 4.1, and the sample comes from an approximately normal population, find the interval estimates of the population mean adopting a confidence level of 95%.

Step 1: Find the degrees of freedom. df = n - 1 = - =

Step 2: Find alpha α =

Step 3: Find the critical value. $t\alpha/2$ =

Step 4: Find the margin of error. $E = (t\alpha/2)\ (s/\sqrt{n})$

= ( )(/√) =

Step 5: Find the confidence interval. $X - E < \mu < X + E$ =

- $< \mu <$ +

$< \mu <$

Step 6: Lower and Upper Confidence Limit

Lower Confidence Limit =

Upper Confidence Limit =

2. The mean age of 20 youth volunteers in a community project is 17.5 years with a standard deviation of 2 years. If the sample comes from an approximately normal distribution, what the interval estimates of the population mean. Use 99% confidence level.

Step 1: Find the degrees of freedom. df = n - 1 = - =

Step 2: Find alpha α =

Step 3: Find the critical value. $t\alpha/2$ =

Step 4: Find the margin of error. $E = (t\alpha/2)\ (s/\sqrt{n})$

= ( )(/√) =

Step 5: Find the confidence interval. $X - E < \mu < X + E$ =

- $< \mu <$ +

$< \mu <$

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