A personnel manager has found that historically the scores on aptitude tests given to applicants for entry-level positions follow a normal distribution with a standard deviation of 32.4 points. A random sample of nine test scores from the current group of applicants had a mean score of 187.9 points.
a. Find an 80% confidence interval for the population mean score of the current group of applicants.
b. Based on these sample results, a statistician found for the population mean a confidence interval extending from 165.8 to 210.0 points. Find the confidence level of this interval.

n= 9

a= 187.9

d=32.4

a. Find an 80% confidence interval for the population mean score of the current group of applicants.

P(a-t<x<a+t)=0.8

P(a-t<x<a+t)= P(-t<x-a<t)=P($\frac{-t}{d}$<$\frac{x-a}{d}$ < $\frac{t}{d}$) = Central limit theorem=

=F($\frac{t}{d}$)-F(-$\frac{t}{d}$)=2F($\frac{t}{d}$)-1=0.8

F($\frac{t}{d}$)=0.9

$\frac{t}{d}$ = 1.28- this value is from table

t=1.28d=41.472

interval is (187.9-41.472, 187.9+41.472)

b. Based on these sample results, a statistician found for the population mean a confidence interval extending from 165.8 to 210.0 points. Find the confidence level of this interval.

P(165.8 <x<210.0)=u – confidence level

P(-22.1<x-187.9<22.1)=u

P($\frac{-22.1}{d}$<$\frac{x-a}{d}$ < $\frac{22.1}{d}$) = Central limit theorem=

=F($\frac{22.1}{d}$)-F(-$\frac{22.1}{d}$)=2F($\frac{22.1}{32.4}$)-1=u

2F(0.68)-1=2*0.7517-1=0.5034

confidence level= 0.5