

2.

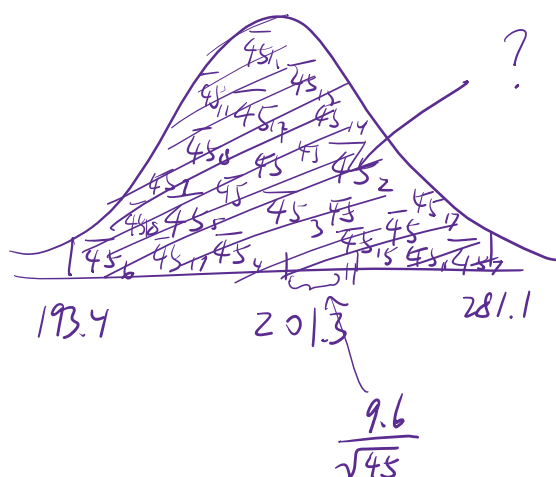
Money	Probability
79850	0.0011

→ -150 | 0.9989 ← 1 - 0.0011

$$\frac{80000}{150}$$

≈ -62 dollars

10.6



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NORMAL FLOAT AUTO REAL RADIAN MP
normalcdf
lower:193.4
upper:281.1
μ:201.3
σ:9.6/√(45)

```



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NORMAL FLOAT AUTO REAL RADIAN MP
normalcdf(193.4,281.1,201.3,
.999999983

```

I. Confidence Interval

A confidence interval is a range of value that is likely to contain the parameter.

... ————— ✓ I think that is likely to contain the parameter proportion p or mean μ .

$\uparrow$ proportion (probability) $\uparrow$ mean

eg $0.85 < p < 0.95$ $\leftarrow$ This is a C.I.

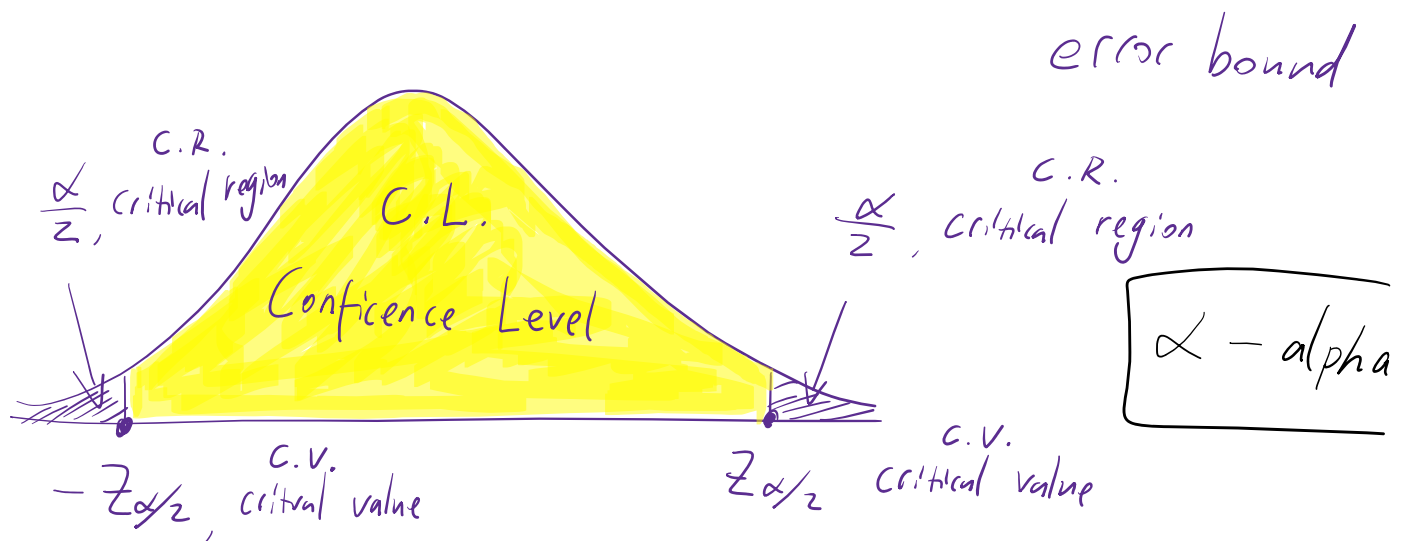
TI-84: (0.85, 0.95)

eg $0.92 < p < 0.98$

This is an "A" C.I., if it talks about grades.
lowest is 92%, highest is 98%

eg $0.62 < p < 0.95$

This is not a good C.I., because it is too wide.
Lowest to highest is too much.



α - significant level $\leftarrow$ "level of significance"

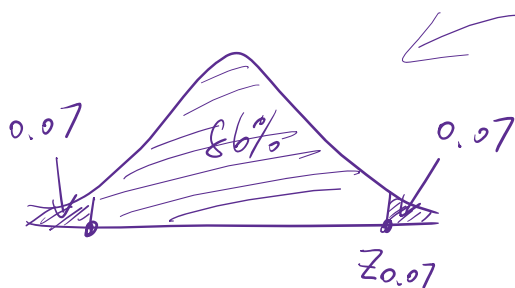
α - significant level : $\leftarrow$ level of significance. It is usually given. Popular 5%, 10%, 1%. Otherwise, automatically 5%.

$Z_{\alpha/2} / -Z_{\alpha/2} / Z_{\alpha} / -Z_{\alpha}$ - critical value. It is the cut-off Z-score for hypothesis testing.

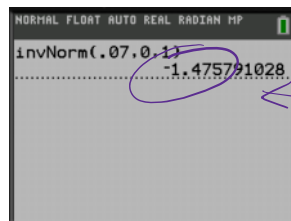
P-value - Probability value. It is the area of the test.

eg Find $Z_{\alpha/2}$ for a 86% Confidence Level.

S: $Z_{\alpha/2}$, $\alpha/2$ means 2 tails, $\uparrow \downarrow$ $Z_{\alpha/2}$ is + 86% C.L.



$$\begin{aligned} & \text{86\% with } \alpha/2 : \frac{1 - 86\%}{2} \\ &= \frac{1 - 0.86}{2} = \frac{0.14}{2} = 0.07 \end{aligned}$$

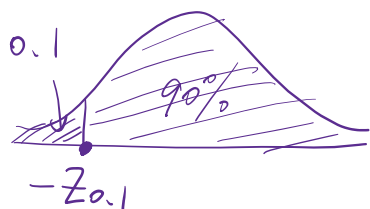


$\leftarrow$ because of default left tail

$$Z_{0.07} \approx \boxed{1.48}$$

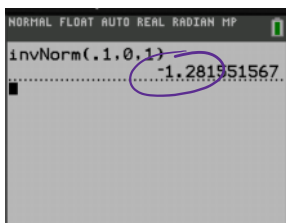
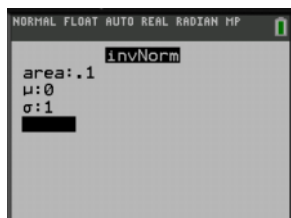
eg Find $-Z_\alpha$ for a 90% Confidence Level.

S:



$-Z_\alpha$ and 90% C.L.: $-$ is left tail ✓
 α is one tail ✓

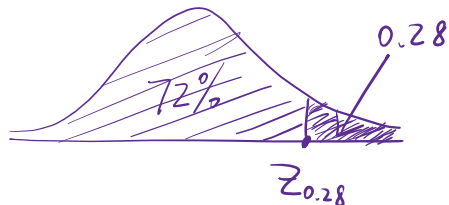
$$1 - 90\% = 1 - 0.9 = 0.1$$



$$-Z_{0.1} \approx \boxed{-1.28}$$

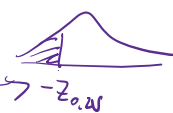
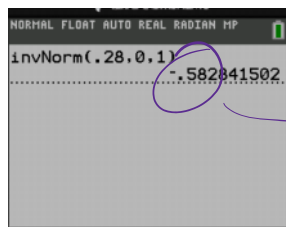
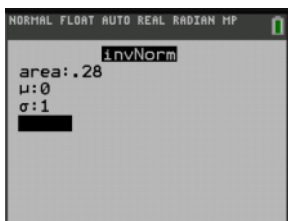
eg Find Z_α for a 72% Confidence Level.

S:



Z_α with 72% : $+Z_\alpha$, ✓
 α ✓

$$1 - 72\% = 1 - 0.72 = 0.28$$



$$Z_{0.28} \approx \boxed{0.58}$$