TOPIC: STANDARD NORMAL DISTRIBUTION WITH GRAPHING CALCULATOR

Probability From Given Z–Scores – TI-84 (CE) Calculator
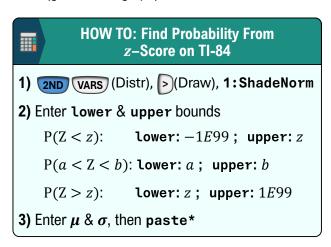
◆ By using a calculator, you can find probabilities to the **left**, **right**, or **between** z-Scores quickly!

▶ To find probabilities, use `normalcdf` (gives # only) or `ShadeNorm` (gives # and graph).

EXAMPLE	Sketch a graph to represent each problem. Use a calculator to find the probability.

(A)

$P(Z < -0.81)$

(B)

$P(-1 < Z < 1)$

HOW TO: Find Probability From z**–Score on TI-84**

1) `2ND` `VARS` (Distr), `>`(Draw), `1:ShadeNorm`

2) Enter `lower` & `upper` bounds

$P(Z < z)$: `lower:` $-1E99$; `upper:` z

$P(a < Z < b)$: `lower:` a ; `upper:` b

$P(Z > z)$: `lower:` z ; `upper:` $1E99$

3) Enter μ & σ, then `paste*`

* Press `2ND` `PRGM`, `1:ClrDraw` when done

Window Settings:

```
WINDOW
 Xmin=-4
 Xmax=4
 Xscl=1
 Ymin=-.2
 Ymax=.5
 Yscl=.1
↓Xres=1
```

PRACTICE	Sketch a graph to represent the probability, then use a calculator to find it.

$P(Z > 1.14)$

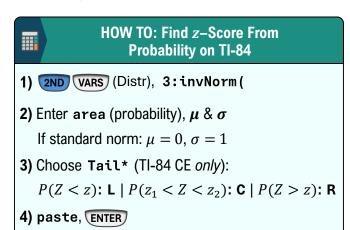## Z–Scores From Given Probability – TI-84 Plus CE Calculator

◆ To find z–scores when given an area or probability, use the **3:invNorm(** function.

EXAMPLE	Sketch a graph to represent each problem. Use a calculator to find the z–score.

HOW TO: Find z–Score From Probability on TI-84

1) **2ND** **VARS** (Distr), **3:invNorm(**

2) Enter **area** (probability), μ & σ
   If standard norm: $\mu = 0$, $\sigma = 1$

3) Choose **Tail*** (TI-84 CE *only*):
   $P(Z < z)$: **L** | $P(z_1 < Z < z_2)$: **C** | $P(Z > z)$: **R**

4) **paste,** **ENTER**

(A)

$P(Z < z) = 0.0853$

* TI-84 Plus (not CE) *always* assumes areas from left

(B)

$P(Z > z) = 0.3409$

PRACTICE	Use a calculator to find the z–scores of the region shown in the standard normal distribution below.

$Area = 0.800$