

## 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)

$$P(-1 < Z < 1)$$

#### PRACTICE

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

$$P(Z > 1.14)$$



#### 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  $\mu$  &  $\sigma$ , 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
```

## TOPIC: STANDARD NORMAL DISTRIBUTION WITH GRAPHING CALCULATOR

### 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.

(A)

$$P(Z < z) = 0.0853$$

(B)

$$P(Z > z) = 0.3409$$



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

- 1) **2ND** **VARS** (Distr), **3:invNorm(**
- 2) Enter **area** (probability),  $\mu$  &  $\sigma$   
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**

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

#### PRACTICE

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

