


Stat Test Operations: Z-Test

Use the Z-test operation to perform a one-sample hypothesis test for an unknown mean μ , when the population standard deviation σ is known, or assumed.

For this example, we will test the hypothesis $H_0: \mu = 8$ against $H_a: \mu < 8$ for a sample of size 10 with a sample mean of $\bar{x} = 7.8$ from a population with standard deviation $\sigma = 0.2$.

Keystrokes

Screen

Press **STAT**  to view the Stat Test menu.

```
EDIT CALC TESTS
1:Z-Test...
2:T-Test...
3:2-SampZTest...
4:2-SampTTest...
5:1-PropZTest...
6:2-PropZTest...
7:ZInterval...
```

Press **1** or **ENTER** to enter the Z-Test function editor.

```
Z-Test
Inpt:Data STATES
μ₀:0
σ:0
x̄:0
n:0
μ:≠μ₀ 0.00 >μ₀
Calculate Draw
```


Note: statistics from previous calculations show automatically in the Z-Test editor. Your screen may appear different from this.

The Z-Test operation requires either a list of data from the Stat List Editor or hand entered statistics. Press **ENTER** with the cursor over Stats and  to enter the information in Stats option.

```
Z-Test
Inpt:Data STATES
μ₀:█
σ:0
x̄:0
n:0
μ:≠μ₀ <μ₀ 0.00
Calculate Draw
```

Use $\mu_0 = 8$, $\sigma = 0.2$, $\bar{x} = 7.8$, $n = 10$, and select $< \mu_0$. Press **ENTER** after each entry to move to the next entry.

```
Z-Test
Inpt:Data STATES
μ₀:8
σ:0.2
x̄:7.8
n:10
μ:≠μ₀ 0.00 >μ₀
Calculate Draw
```

Press  and **ENTER** to **Calculate** the z-score and p-value for your test.

```
Z-Test
μ<8
z=-3.16227766
P=7.82767E-4
x̄=7.8
n=10
█
```

Note: the p-value is written in calculator scientific notation. See the handout for Scientific Notation for more information.

Note:

- 1) **Z-Test** can use data entered into a list; select **Data** instead of **Stats**. See the manual for more information.
- 2) **Z-test** can draw the graph of the Normal bell-curve with the shaded area for the p -value; select **Draw** instead of **Calculate**. See the manual for more information.

More questions? Contact the **Metropolitan State University Math Center** at 651-793-1460, 651-793-1463 (Fax) or math.center@metrostate.edu.