

# Distr Functions: normalcdf

**Find a cumulative normal probability.**

We will compute  $P(X < 36)$  for the  $N(35, 2)$  distribution.

Keystrokes

Screen

**normalcdf** computes the normal distribution probability between a lower bound and upper bound for the specified mean,  $\mu$ , and standard deviation,  $\sigma$ . Press

**2nd** **VARs**

Press **▼** once and **ENTER** to paste the **normalcdf** function to the main screen.

Note: you can also selection option **2** directly by pressing **2**.

The format for the input of **normalcdf** is: (lowerbound, upperbound,  $\mu$ ,  $\sigma$ ). For this example, enter the following:

**(-)** **1** **2nd** **,** **99** **,** **36** **,** **35**  
**,** **2** **)**

Press **ENTER**.

Thus, the cumulative normal probability  $P(X < 36)$  with the  $N(35, 2)$  distribution is approximately 69.14%.

Note: the default parameters are  $\mu=0$  and  $\sigma=1$ , the standard normal distribution. The probability shown in this screen is

$$P(-1.2 < Z < 2.5) \text{ for } N(1, 0).$$

Notes:

- 1) **-1E99** and **1E99** represent approximations used for negative and positive infinity, respectively. See handout on Scientific Notation.
- 2) **normalcdf** can also be used to calculate standard normal approximations for a Binomial Distribution, with or without the continuity correction. See handout for Standard Normal Approximations.

```
0: DRAW
1: normalcdf(
2: normalcdf(
3: invNorm(
4: tpdf(
5: tcdf(
6: X²Pdf(
7: X²cdf(
```

```
normalcdf(
```

```
normalcdf(-1E99,
36, 35, 2)
```

```
normalcdf(-1E99,
36, 35, 2)
.6914624678
```

```
normalcdf(-1.2, 2
.5)
.8787205886
```

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