Normal CDF Instructions for TI 83 and 84.

Case 1. Using z scores. The mean is zero, the standard deviation is one; we don't need to specify those values.

Example: Find the probability that a z-score is between -1.5 and 2. That is, find P(-1.5 ≤ z ≤ 2).

Press 2nd VARS [DISTR]. Scroll down to 2: normalcdf(Press ENTER.

```
DISTR DRAW
1:normalpdf(
2:normalcdf(
3:invNorm(
4:invT(
5:tpdf(
6:tcdf(
7↓X²pdf(
```

Enter -1.5,2) and press ENTER; to get the answer .91044.
The syntax is normalcdf(lower z, upper z).

```
normalcdf(-1.5,2
)
        .9104427093
■
```

Case 2. Using not standardized scores.

Probability of **less than** a specific value. Not z scores? We need to specify mean and standard deviation:

a) Example: Adult IQs are normally distributed with μ = 100 and σ = 15. Find the probability that a randomly selected IQ is less than 112. That is, find P(x < 112).

Again, press 2nd VARS [DISTR]. Scroll down to 2:normalcdf(Press ENTER.

Input -9999,112,100,15) and press ENTER to get the answer .7881.
The syntax is normalcdf(lower, upper, μ, σ).

```
normalcdf(-9999,
112,100,15)
        .7881446663
■
```

Calculator reads from left to right (real number line). That's why whenever we look for less than a specific value it reads form –infinity (-99999) to the given value.
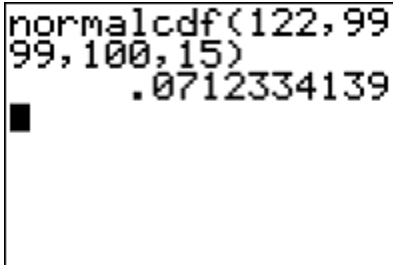
Whenever we look for probability of greater than a given value, it reads from the value to positive infinity. See the following example:

b) Find the probability that a randomly selected IQ is **greater than** 122. That is, find P(x ≥ 122).

Star over, press 2nd VARS [DISTR]. Scroll down to 2:normalcdf(Press ENTER.

Input 122,9999,100,15) and press ENTER to get the answer .0712.
The syntax is normalcdf(lower, upper, μ, σ).

```
normalcdf(122,99
99,100,15)
       .0712334139
■
```

 In this case 9999 represents "positive infinity". TI manual suggests E99, which is equivalent to positive infinity.

c) Now, the case **in between two** specific values. We don't need infinity as an upper or lower limit in this case.
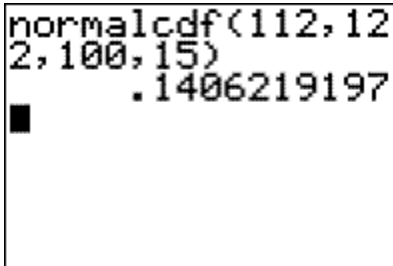
Example: Find the probability that a randomly selected IQ is between 112 and 122.

That is, find P(112 ≤ x ≤ 122).

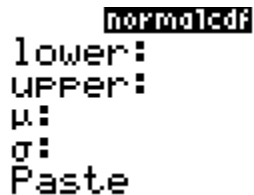Press 2nd VARS [DISTR]. Scroll down to 2:normalcdf(Press ENTER.
Input 112,122,100,15) and press ENTER to get the answer .1406.
The syntax is normalcdf(lower, upper, μ, σ).

```
normalcdf(112,12
2,100,15)
       .1406219197
■
```

For a TI 84, once you choose normalcdf, you get this screen:

```
 normalcdf
 lower:
 upper:
 μ:
 σ:
 Paste
```

So you don't need to remember the syntax: lower, upper, mean, standard deviation. Just input your values and press enter.