

Chapter 14 / **Example 11**

Calculate normal probabilities

The GDC will calculate normal probabilities directly from *any* distribution without the need to standardize the variable.

$X \sim N(10, 2^2)$. Find:

a $P(X < 13)$

b $P(X > 9)$

c $P(9.1 < X < 10.3)$

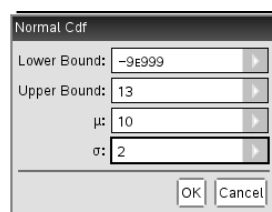
Open a new document and add a Calculator page.

Press **menu** 5:Probability | 5:Distributions | 2:Normal Cdf...

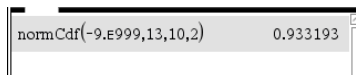
Set the Upper Bound to 13, μ to 10, σ to 2 and leave the Lower bound as -9E999.

-9E999 means -9×10^{999} - a very small number.

Press **enter**.



$P(X < 13) = 0.933$



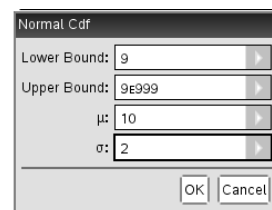
Press **menu** 5:Probability | 5:Distributions | 2:Normal Cdf...

Set the Lower bound to 9, the Upper Bound to 9E999, μ to 10 and σ to 2.

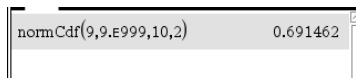
9E999 means 9×10^{999} - a very large number.

To enter E press **EE**.

Press **enter**.



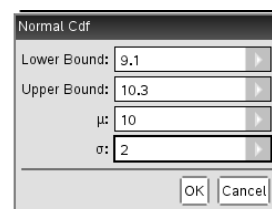
$P(X > 9) = 0.691$



Press **menu** 5:Probability | 5:Distributions | 2:Normal Cdf...

Set the Lower bound to 9.1, the Upper Bound to 10.3, μ to 10 and σ to 2.

Press **enter**.



$P(9.1 < X < 10.3) = 0.233$

