Chapter 14 / **Example 11**

Calculate normal probabilities

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

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

a $\mathrm{P}(X < 13)$ **b** $\mathrm{P}(X > 9)$ **c** $\mathrm{P}(9.1 < X < 10.3)$

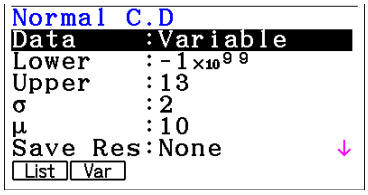
Press MENU 2 to display the List Editor screen.

Press F5 DIST F1 NORM F2 Ncd

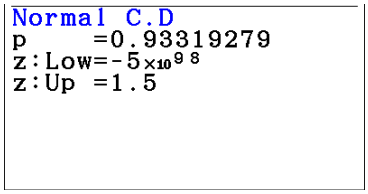
Select Data F2 Var

Enter -1×10^{99} as the value of Lower using $\times 10^x$, 13 as the value of Upper, 2 as the value of σ, 10 as the value of μ and leave the other variables unchanged.

Use ▼ to navigate down to Execute and press EXE.



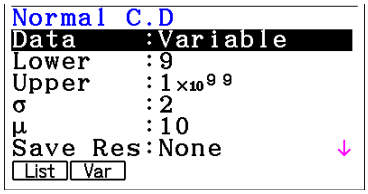
$\mathrm{P}(X < 13) = 0.933$



Press EXIT

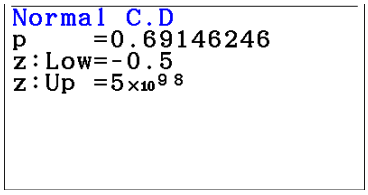
Enter 9 as the value of Lower, 1×10^{99} as the value of Upper using $\times 10^x$, 2 as the value of σ, 10 as the value of μ and leave the other variables unchanged.

Use ▼ to navigate down to Execute and press EXE.



Press Í.

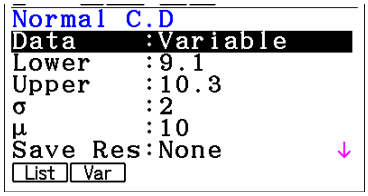
$\mathrm{P}(X > 9) = 0.691$



Press EXIT

Enter 9.1 as the value of Lower, 10.3 as the value of Upper, 2 as the value of σ, 10 as the value of μ and leave the other variables unchanged.

Use ▼ to navigate down to Execute and press EXE.



Chapter 14 / **Example 11**

Calculate normal probabilities

$\mathrm{P}(9.1 < X < 10.3) = 0.233$