

Chapter 13 / Example 9

Normal distribution

If $X \sim N(10, 4)$ find

a $P(9 < X < 12)$

b $P(X < 13)$

c $P(X > 7)$

Press **MENU** 2 **STAT** to display the List Editor screen.

Press **F5** DIST **F1** NORM **F2** Ncd.

Select Data **F2** Var.

Enter 9 as the value of Lower, 12 as the value of Upper, 2 as the value of σ , 10 as the value of μ and the other items unchanged.

```
Normal C.D
Data :Variable
Lower :9
Upper :12
σ :2
μ :10
Save Res:None
[None] LIST
```

Use **▼** to navigate down to Execute and press **EXE** **□**

$P(9 < X < 12) = 0.533$.

```
Normal C.D
p =0.5328072
z:Low=-0.5
z:Up =1
```

Press **EXIT** to display the Normal CD template.

Enter -1×10^{99} as the value of Lower using **x10^x**, 13 as the value of Upper, leave 2 as the value of σ , 10 as the value of μ and the other items unchanged.

```
Normal C.D
Data :Variable
Lower :-1×1099
Upper :13
σ :2
μ :10
Save Res:None
[None] LIST
```

Use **▼** to navigate down to Execute and press **EXE** **□**

$P(X < 13) = 0.933$.

```
Normal C.D
p =0.93319279
z:Low=-5×1098
z:Up =1.5
```

Press **EXIT** to display the Normal CD template.

Enter 7 as the value of Lower, 1×10^{99} as the value of Upper using **x10^x**, leave 2 as the value of σ , 10 as the value of μ and the other items unchanged.

```
Normal C.D
Data :Variable
Lower :7
Upper :1×1099
σ :2
μ :10
Save Res:None
[None] LIST
```

Use **▼** to navigate down to Execute and press **EXE** **□**

$P(X > 7) = 0.933$.

```
Normal C.D
p =0.93319279
z:Low=-1.5
z:Up =5×1098
```