

Chapter 11 / **Example 19**

The inverse normal function

The weights of apples follow a normal distribution with a mean of 45 g and a standard deviation of 5 g. Apples are rejected from sales if they do not fall in the central 80% of the distribution.

Find the value of the limits within which the central 80% of the distribution lies.

$$X \sim N(45, 5^2).$$

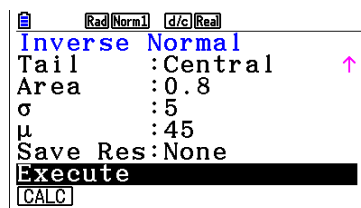
Press **MENU** 2 **STAT** to display the List Editor screen.

Press **F5** DIST **F1** NORM **F3** InvN.

Select Data **F2** Var and Select Tail **F3** CENTRAL.

Enter the Area as 0.8, σ as 5 and μ as 45.

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

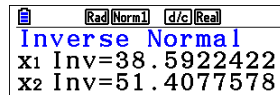


```

Rad(Norm1) d/c(Real)
Inverse Normal
Tail      :Central
Area      :0.8
sigma     :5
mu        :45
Save Res:None
Execute
CALC
  
```

The calculator shows the values 38.6 and 51.4.

Hence 80% of the distribution lies in the interval $[38.6, 51.4]$.



```

Rad(Norm1) d/c(Real)
Inverse Normal
x1 Inv=38.5922422
x2 Inv=51.4077578
  
```