

# 8) NORM.DIST Function

Calculating Probabilities for a Normal (Bell) Distribution when you have:

Excel 2010 Dots

- $x$  = particular  $x$  value
- $\mu$  = population mean
- $\sigma$  = population standard deviation

= NORM.DIST( $x, \mu, \sigma, \text{cumulative}$ )

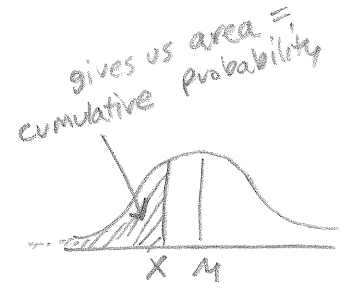
cumulative = 1 (or TRUE)

Returns area from  $-\infty$  to  $x$

or

cumulative = 0 (or False)

Returns the height of the curve at a particular  $x$  value



\*Excel Help:

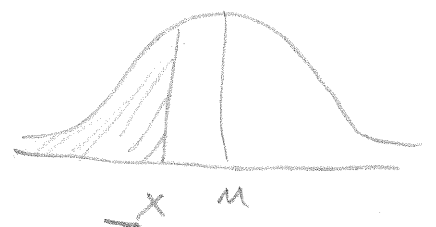
1 or TRUE returns the "cumulative distribution function".  
 0 or FALSE returns the "probability mass function".

# 9) NORM.INV Function

It takes the cumulative probability ( $-\infty$  to  $x$ ) & will give you the  $x$  value

= NORM.INV(<sup>cumulative</sup> Probability,  $\mu, \sigma$ )

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gives us  $x$

# 10 NORM.S.DIST function

calculating probabilities for a Standard (z) Normal Distribution

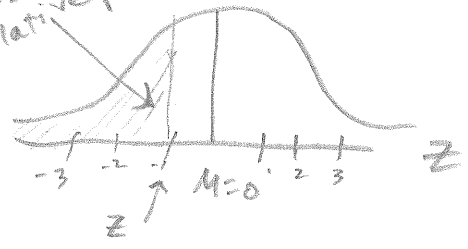
$$z = \frac{x - \mu}{\sigma} = \text{\# of SD away from mean.}$$

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$$= \text{NORM.S.DIST}(z, \text{cumulative})$$

1 for cumulative (second argument)

gives us area = cumulative probability



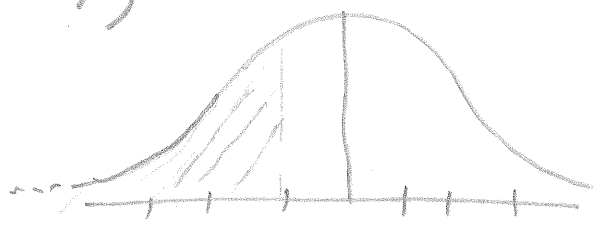
# 11 NORM.S.INV function

It takes the cumulative probability (-infinity to x) and gives you the associated z-score.

S

$$= \text{NORM.S.INV}(\text{cumulative probability})$$

Excel 2010  
2 Dots



gives us z

// //

S in function name means:

"Standard" Normal probability Distribution.