**Some mathematical, statistical and logical functions in excel**

**Some Examples on the Mathematical Function**

|  |  |  |
| --- | --- | --- |
|  | **=EXP(-1.5)** | 0.22313016 |
|  | **=LOG(25)** | 1.397940009 |
|  | **=LN(25)** | 3.218875825 |
|  | **=COMBIN(10,2)** | 45 |
|  | **=SQRT(25)** | 5 |
|  | **=ABS(-10)** | 10 |
|  | **=POWER(3,2)****=3^2** | 9 |

**Some Examples on the Statistical Function**

**Example**

Suppose we are interested in the number of children that a Saudi woman has and we take a sample of 20 women and obtain the following data on the number of children

2, 3, 2, 2, 0, 2, 3, 6, 3, 2, 2, 4, 3, 1, 3, 3, 3, 2, 1, 5

 - Calculate the mean, median, variance, standard deviation, total,

 maximum, minimum and mode(s)

 To achieve this in excel put the data in a column (A2:A21) or raw and use

 the following commands

|  |  |  |  |
| --- | --- | --- | --- |
| Total | =SUM(A2:A21) |  | 52 |
| Mean | =AVERAGE(A2:A21) |  | 2.6 |
| Median | =MEDIAN(A2:A21) |  | 2.5 |
| Max | =MAX(A2:A21) |  | 6 |
| Min | =MIN (A2:A21) |  | 0 |
| Standard deviation for sample | =STDEV(A2:A21) | New in Excel 2010 =STDEV.S(A2:A21) | 1.353358 |
| Standard deviation for population | = STDEV P(A2:A21) | New in Excel 2010 =STDEV.P(A2:A21) | 1.319091 |
| Variance for sample | =VAR(A2:A21) | New in Excel 2010 =VAR.S(A2:A21) | 1.831579 |
| Variance for population | =VARP (A2:A21) | New in Excel 2010 =VAR.S(A2:A21) | 1.74 |

- **Frequency Table**

|  |  |  |
| --- | --- | --- |
| N.children |  | Frequency |
| 0 | =COUNTIF(A2:A21,”0”) | 1 |
| 1 | =COUNTIF(A2:A21,”1”) | 2 |
| 2 | =COUNTIF(A2:A21,”2”) | 7 |
| 3 | =COUNTIF(A2:A21,”3”) | 7 |
| 4 | =COUNTIF(A2:A21,”4”) | 1 |
| 5 | =COUNTIF(A2:A21,”5”) | 1 |
| 6 | =COUNTIF(A2:A21,”6”) | 1 |

**- Probability distributions**

If , then Calculate

|  |  |  |
| --- | --- | --- |
|  | =NORMDIST(1.5,2,7,TRUE) | 0.471528 |
|  | =NORMINV(0.25,2,7) | -2.72143 |

**Example on the Logical Functions**

Use if statement to print the status of the student In creation exam using the following marks

|  |  |  |  |
| --- | --- | --- | --- |
|  | A |  |  |
| 1 | Marks | Function | Grade |
| 2 | 70 | =IF(A2<60,”Fail”,”Pass”) | Pass |
| 3 | 85 | =IF(A3<60,”Fail”,”Pass”) | Pass |
| 4 | 83 | =IF(A4<60,”Fail”,”Pass”) | Pass |
| 5 | 25 | =IF(A5<60,”Fail”,”Pass”) | Fail |
| 6 | 80 | =IF(A6<60,”Fail”,”Pass”) | Pass |
| 7 | 98 | =IF(A7<60,”Fail”,”Pass”) | Pass |
| 8 | 80 | =IF(A8<60,”Fail”,”Pass”) | Pass |
| 9 | 72 | =IF(A9<60,”Fail”,”Pass”) | Pass |
| 10 | 42 | =IF(A10<60,”Fail”,”Pass”) | Fail |
| 11 | 32 | =IF(A11<60,”Fail”,”Pass”) | Fail |