**Microsoft Excel**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | J | K | L | M |
| 1 | A |   |   |   |   |   |   |   |   |   |   |   |
| 2 |   |   |   |   |   |   |   |   |   |   |   |   |
| 3 | x | 7 | 8 | 9 | 10 | 11 | 12 | 13 |   |   |   |   |
| 4 | f | 1 | 3 | 5 | 7 | 5 | 3 | 1 |   |   |   |   |
| 5 |   |   |   |   |   |   |   |   |   |   |   |   |
| 6 | Mean => f X x | 7 | 24 | 45 | 70 | 55 | 36 | 13 | 250 | <= sum of f X x | Mean =>  | 10 |
| 7 |   | 1 | 3 | 5 | 7 | 5 | 3 | 1 | 25 | <= sum of f |   |   |
| 8 |   |   |   |   |   |   |   |   |   |   |   |   |
| 9 | Standard deviation =>(x-M) | -3 | -2 | -1 | 0 | 1 | 2 | 3 |   |   |   |   |
| 10 | (x-M)^2 | 9 | 4 | 1 | 0 | 1 | 4 | 9 | 28 | <= sum of (x-M)^2 |   |   |
| 11 | f(x-M)^2 | 9 | 12 | 5 | 0 | 5 | 12 | 9 | 52 | <= sum of f(x-M)^2 | Variance => | 2.08 |
| 12 |   |   |   |   |   |   |   |   |   |   |   |   |
| 13 | Standard Deviation=> | 1.44222051 |   |   |   |   |   |   |   |   |   |   |
| 14 |   |   |   |   |   |   |   |   |   |   |   |   |
| 15 | **FORMULA** |   |   |   |   |   |   |   |   |   |   |   |
| 16 | x | 7 | 8 | 9 | 10 | 11 | 12 | 13 |   |   |   |   |
| 17 | f | 1 | 3 | 5 | 7 | 5 | 3 | 1 |   |   |   |   |
| 18 |   |   |   |   |   |   |   |   |   |   |   |   |
| 19 | Mean => f X x | =C16\*C17 | =D16\*D17 | =E16\*E17 | 70 | 55 | 36 | 13 | =SUM(C19:I19) | <= sum of f X x | Mean =>  | =J19/J20 |
| 20 |   | =C17 | =D17 | =E17 | 7 | 5 | 3 | 1 | =SUM(C20:I20) | <= sum of f |   |   |
| 21 |   |   |   |   |   |   |   |   |   |   |   |   |
| 22 | Standard deviation =>(x-M) | =C16-$M$6 | =D16-$M$6 | =E16-$M$6 | 0 | 1 | 2 | 3 |   |   |   |   |
| 23 | (x-M)^2 | =C22^2 | =D22^2 | =E22^2 | 0 | 1 | 4 | 9 | =SUM(C23:I23) | <= sum of (x-M)^2 |   |   |
| 24 | f(x-M)^2 | =C23\*C17 | =D23\*D17 | =E23\*E17 | 0 | 5 | 12 | 9 | =SUM(C24:I24) | <= sum of f(x-M)^2 | Variance => | =J24/J20 |
| 25 |   |   |   |   |   |   |   |   |   |   |   |   |
| 26 | Standard Deviation => | =SQRT(M24) |   |   |   |   |   |   |   |   |   |   |