**Lampiran 13**

**PERHITUNGAN NILAI UJI MEAN TERHADAP DATA HASIL**

***PRETEST* DAN *POSTTEST* SISWA PADA MATA PELAJARAN BIOLOGI**

**KELAS XI IPA**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **NO.** | **(x)** | **(y)** | **(x)²** | **(y)²** | **D** | **D²** |
| **(x) - (y)** |
| 1 | 80 | 60 | 6400 | 3600 | 20 | 400 |
| 2 | 75 | 50 | 5625 | 2500 | 25 | 625 |
| 3 | 90 | 75 | 8100 | 5625 | 15 | 225 |
| 4 | 80 | 55 | 6400 | 3025 | 25 | 625 |
| 5 | 75 | 35 | 4900 | 1225 | 35 | 1225 |
| 6 | 80 | 55 | 6400 | 3025 | 25 | 625 |
| 7 | 75 | 60 | 5625 | 3600 | 15 | 225 |
| 8 | 95 | 75 | 9025 | 5625 | 20 | 400 |
| 9 | 95 | 75 | 9025 | 5625 | 20 | 400 |
| 10 | 75 | 45 | 5625 | 2025 | 30 | 900 |
| 11 | 95 | 75 | 9025 | 5625 | 20 | 400 |
| 12 | 95 | 55 | 9025 | 3025 | 40 | 1600 |
| 13 | 75 | 55 | 5625 | 3025 | 20 | 400 |
| 14 | 80 | 70 | 6400 | 4900 | 10 | 100 |
| 15 | 90 | 55 | 8100 | 3025 | 35 | 1225 |
| 16 | 90 | 70 | 8100 | 4900 | 20 | 400 |
| 17 | 80 | 45 | 6400 | 2025 | 35 | 400 |
| 18 | 70 | 35 | 5625 | 1225 | 40 | 1600 |
| 19 | 95 | 60 | 9025 | 3600 | 35 | 1225 |
| 20 | 75 | 50 | 5625 | 2500 | 25 | 625 |
| 21 | 90 | 55 | 8100 | 3025 | 35 | 1225 |
| 22 | 80 | 75 | 6400 | 5625 | 5 | 25 |
| 23 | 40 | 25 | 1600 | 625 | 15 | 225 |
| 24 | 85 | 75 | 7225 | 5625 | 10 | 100 |
| 25 | 55 | 50 | 3025 | 2500 | 5 | 25 |
| 26 | 75 | 55 | 5625 | 3025 | 20 | 400 |
| 27 | 85 | 70 | 7225 | 4900 | 15 | 225 |
| 28 | 80 | 55 | 6400 | 3025 | 25 | 625 |
| 29 | 75 | 60 | 5625 | 3600 | 15 | 225 |
| **Jml** | **2330** | **1675** | **187525** | **101675** | **630** | **16500** |
| **Rata-rata** | **80,34** | **57,75** | **6466,37** | **3506,03** | **21,72** | **568,97** |

1. Mencari Mean *posttest* (x) dan *pretest* (y) dengan rumus :
2. Mx = 

= 

= 80,34

1. My = 

= 

= 57,76

1. Mencari Standar deviasi kuadrat (x) dan (y)
2. SDX2 = - Mx2

= 

= 6466,38 – 6454,52

= 11,86

1. SDY2= - My2

= 

= 3506,03 – 3336,22

= 169,81

1. Mencari standar deviasi mean kuadrat dari *pretest* dan *posttest* dengan rumus :
2. SD2Mx = 

= 

= 

= 0,42

1. SD2MY = 

= 

= 

= 6,06

1. Mencari SDbm dengan rumus

 SDbm = **

= 

 = 

 = 2,55

1. Selanjutnya sudah dapat digunakan rumus *t – test*

t – test = 

 = 

 = 

 = 8,85

 d.b = (Nx+ Ny) – 2

 = (29 + 29) – 2

 = 58 - 2

 = 56