**Appendix 1**

**The students’ names and initial of experimental group**

|  |  |  |
| --- | --- | --- |
| NO | Name | Students’ Initial |
| 1 | Amelda Aisyahto | AA |
| 2 | Adelia Sari | AS |
| 3 | Aulia Nurhayati | AN |
| 4 | Aditya Pratama Purba | APP |
| 5 | Adi Prayan | AP |
| 6 | Ari Putra | AP |
| 7 | Bragi Surya | BS |
| 8 | Bintang Amar | BA |
| 9 | Dewi Safira | DS |
| 10 | Dwi Anita | DA |
| 11 | Imam Madani | IM |
| 12 | Linggar Emran | LE |
| 13 | Lady Nababan | LN |
| 14 | May Rizky Febriana | MRF |
| 15 | Mariana Br Sembiring | MS |
| 16 | Muhammad Arief | MA |
| 17 | Muhammad Dava Alwi | MDA |
| 18 | Mettiani Br Tarigan | MT |
| 19 | Nadia Milala | NM |
| 20 | Nurmia Hasanah | NH |
| 21  22 | Putri Bacin  Rahmat Arsy | PB  RA |
| 23 | Reni Syakilla | RS |
| 24 | Suryani Br Tarigan | ST |
| 25 | Sariani Dewi Br Ginting | SDG |
| 26 | Tiara Dinda Lestari | TDL |
| 27 | Wika Anatasya | WA |
| 28 | Winda Lauren | WL |
| 29 | Yogi Sandi | YS |
| 30 | Yetno Syaputra | YS |

**The students’ names and initial of control group**

|  |  |  |
| --- | --- | --- |
| NO | Name | Students’ Initial |
| 1 | Adinda Silfa | AS |
| 2 | Angga Ramadhani | AR |
| 3 | Awang Syahputra | AS |
| 4 | Ayu Safni Aulia | ASA |
| 5 | Belisa Santika | BS |
| 6 | Darma Sanjaya | DS |
| 7 | Dewita Oktaviani | DO |
| 8 | Devy Pratiwi | DP |
| 9 | Dita Anggraini | DA |
| 10 | Enda Tiara Anggraini | ETA |
| 11 | Emiya Indriyani | EI |
| 12 | Gilang Pratama | GP |
| 13 | Hanifa Aprillia | HA |
| 14 | Helma Makarani | HM |
| 15 | Hendy Hasym | HH |
| 16 | Juliana | JA |
| 17 | Juni Arsya Fauziah | JAF |
| 18 | Jihan Syahputra | JS |
| 19 | Kartika Sari | KS |
| 20 | Khairunisa | KH |
| 21 | Leonaldy | LY |
| 22 | Lisnawati | LI |
| 23 | Luluk Gunawan | LG |
| 24 | Nurmala Sari | NS |
| 25 | Putriana | PA |
| 26 | Rafael Andrean | RA |
| 27 | Rahmayani | RH |
| 28 | Rama Maulana | RM |
| 29 | Refani Anggria | RA |
| 30 | Syahman | SN |
|  |  |
|  | | |

**Appendix 2**

**The Calculation of the test validity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| NO | X | Y | X2 | Y2 | | x,y |
| 1 | 70 | 42 | 4900 | 1764 | | 2940 |
| 2 | 47 | 52 | 2209 | 2704 | | 2444 |
| 3 | 70 | 55 | 4900 | 3025 | | 3850 |
| 4 | 50 | 63 | 2500 | 3969 | | 3150 |
| 5 | 70 | 65 | 4900 | 4225 | | 4550 |
|  | |  |
| 6 | 60 | 56 | 3600 | 3136 | | 3360 |
| 7 | 53 | 63 | 2809 | 3969 | | 3339 |
| 8 | 62 | 65 | 3844 | 4225 | | 4030 |
| 9 | 70 | 70 | 4900 | 4900 | | 4900 |
| 10 | 60 | 66 | 3600 | 4356 | | 3960 |
| 11 | 67 | 50 | 4489 | 2500 | | 3350 |
| 12 | 56 | 47 | 3136 | 2209 | | 2632 |
| 13 | 50 | 50 | 4900 | 2500 | | 2650 |
| 14 | 70 | 43 | 4900 | 1849 | | 3010 |
| 15 | 55 | 40 | 3025 | 2025 | | 2200 |
| 16 | 45 | 55 | 2025 | 3025 | | 2475 |
| 17 | 55 | 70 | 3025 | 4900 | | 3850 |
| 18 | 53 | 70 | 2809 | 4900 | | 4900 |
| 19 | 47 | 54 | 2209 | 2916 | | 2538 |
| 20 | 55 | 62 | 3025 | 3844 | | 3410 |
| 21 | 70 | 55 | 4900 | 3600 | | 4200 |
| 22 | 70 | 67 | 4900 | 4489 | | 4690 |
| 23 | 65 | 55 | 4225 | 3025 | | 3575 |
| 24 | 66 | 52 | 4356 | 2704 | | 3432 |
| 25 | 60 | 57 | 3600 | 3249 | | 3420 |
| 26 | 65 | 65 | 4225 | 4225 | | 4225 |
| 27 | 74 | 45 | 5476 | 2025 | | 3330 |
| 28 | 63 | 45 | 3969 | 2025 | | 2925 |
| 29 | 55 | 45 | 3025 | 2025 | | 2475 |
| 30 | 49 | 55 | 2401 | 3025 | | 2695 |
| **TOTAL** | **1822** | **1684** | **112782** | **96908** | | **102405** |

Where:

∑x = 1822

∑y =1684

∑x² =112782

∑y² =96908

∑Xy =102405

= 0,57

**Appendix 3**

**The calculation of t-test or the result of pre-test and post-test with d value**

1. **Experimental Group**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No | Students’  Initial | Score of pre-test | Score of post-test | Deviation  (d) | (dx)=d-mx | Square of deviation (dx2) |
| 1 | AA | 70 | 77 | 7 | -1 | 1 |
| 2 | AS | 47 | 52 | 5 | -3 | 8 |
| 3 | AN | 70 | 80 | 10 | -2 | 4 |
| 4 | APP | 50 | 57 | 7 | -1 | 1 |
| 5 | AP | 70 | 79 | 9 | 1 | 1 |
| 6 | APR | 60 | 67 | 7 | -1 | 1 |
| 7 | BS | 53 | 60 | 7 | -1 | 1 |
| 8 | BS | 62 | 68 | 6 | -2 | 4 |
| 9 | BA | 70 | 80 | 10 | 2 | 4 |
| 10 | DS | 60 | 68 | 8 | 0 | 0 |
| 11 | DA | 67 | 80 | 9 | 1 | 1 |
| 12 | IM | 56 | 68 | 8 | 0 | 1 |
| 13 | LE | 70 | 76 | 11 | 3 | 0 |
| 14 | LN | 70 | 64 | 13 | 5 | 9 |
| 15 | MRF | 55 | 81 | 7 | -1 | 25 |
| 16 | MBS | 45 | 83 | 8 | 0 | 1 |
| 17 | MA | 55 | 62 | 2 | -6 | 0 |
| 18 | MDA | 53 | 53 | 9 | 1 | 36 |
| 19 | MT | 47 | 57 | 8 | 0 | 1 |
| 20 | NM | 55 | 62 | 8 | 0 | 0 |
| 21 | NH | 70 | 55 | 10 | 2 | 0 |
| 22 | PB | 70 | 63 | 10 | 2 | 4 |
| 23 | RA | 65 | 80 | 8 | 0 | 4 |
| 24 | RS | 66 | 80 | 9 | 1 | 0 |
| 25 | SBT | 60 | 73 | 10 | 2 | 1 |
| 26 | SDG | 65 | 75 | 9 | 1 | 4 |
| 27 | TDL | 74 | 70 | 3 | -5 | 1 |
| 28 | WA | 63 | 74 | 2 | -6 | 25 |
| 29 | WL | 55 | 60 | 5 | -3 | 36 |
| 30 | YSA | 49 | 54 | 5 | -3 | 9 |
| **TOTAL** | | **1684** | **2052** | **240** | **-12** | **197** |

= 8

**b. control group**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | | Student’  Initial | Score of  Pre-test | Score of  Post-test | Deviation  (d) | (dx) =  d-mx | Square of  Deviation (dx2) |
| 1 | | AS | 42 | 47 | 5 | -1 | 1 |
| 2 | | AR | 52 | 60 | 8 | 2 | 4 |
| 3 | | AS | 55 | 68 | 13 | 7 | 49 |
|  |  | |  |  |  |  |  |
| 4 | | ASA | 63 | 75 | 12 | 6 | 36 |
| 5 | | BS | 65 | 70 | 5 | -1 | 1 |
| 6 | | DS | 56 | 68 | 12 | 6 | 36 |
| 7 | | DO | 63 | 75 | 5 | 6 | 36 |
| 8 | | DP | 65 | 71 | 12 | 0 | 0 |
| 9 | | DA | 70 | 75 | 12 | -1 | 1 |
|  | | | | | | | |
| 10 | | ETA | 66 | 71 | 6 | -1 | 1 |
| 11 | | EI | 50 | 55 | 5 | -1 | 1 |
| 12 | | GP | 43 | 50 | 5 | -3 | 9 |
| 13 | | HA | 40 | 55 | 5 | -1 | 1 |
| 14 | | HM | 55 | 50 | 3 | 1 | 1 |
| 15 | | HH | 40 | 45 | 5 | -1 | 1 |
| 16 | | JA | 55 | 60 | 7 | -1 | 1 |
| 17 | | JAF | 70 | 75 | 5 | -1 | 1 |
| 18 | | JS | 70 | 75 | 5 | -1 | 1 |
| 19 | | KS | 54 | 59 | 5 | -1 | 1 |
| 20 | | KH | 62 | 65 | 3 | -3 | 9 |
| 21 | | LY | 60 | 65 | 5 | -1 | 1 |
| 22 | | LI | 67 | 70 | 3 | -3 | 9 |
| 23 | | LG | 55 | 60 | 5 | -1 | 1 |
| 24 | | NS | 52 | 60 | 8 | 2 | 4 |
| 25 | | PA | 57 | 60 | 3 | -3 | 9 |
| 26 | | RA | 65 | 70 | 5 | -1 | 1 |
| 27 | | RH | 45 | 50 | 5 | -1 | 1 |
| 28 | | RM | 45 | 50 | 5 | -1 | 1 |
| 29 | | RA | 45 | 50 | 5 | -1 | 1 |
| 30 | | SN | 55 |  | 5 | -1 | 1 |
| **TOTAL** | |  | **1684** | **1864** | **180** | **0** | **220** |

From the data above, it is obtains that:

Mx :8

My :6

dx² :197

dy² :220

Nx :30

Ny :30

=2,85