

Lampiran 1

**HASIL PELAKSANAAN TES AWAL SERVIS ATAS BOLA VOLI PADA
KELOMPOK METODE MENGAJAR RESIPROKAL**

| NO | NAMA | TEST | |
|----|---------|------|-------|
| | | AWAL | AKHIR |
| 1 | A C D | 30 | 31 |
| 2 | A H | 37 | 39 |
| 3 | A S | 24 | 28 |
| 4 | A P N | 31 | 31 |
| 5 | A S N F | 27 | 32 |
| 6 | F A | 39 | 40 |
| 7 | M R C | 29 | 34 |
| 8 | M E N | 31 | 31 |
| 9 | N A | 20 | 26 |
| 10 | R R | 30 | 33 |
| 11 | R G | 26 | 28 |
| 12 | R D A | 22 | 27 |
| 13 | S A R | 27 | 29 |
| 14 | S K | 31 | 37 |
| 15 | V W L | 36 | 37 |

Lampiran 2

**HASIL PELAKSANAAN TES AWAL SERVIS ATAS BOLA VOLI PADA
KELOMPOK METODE KOMANDO**

| NO | NAMA | TEST | |
|----|-------|------|-------|
| | | AWAL | AKHIR |
| 1 | A L | 40 | 44 |
| 2 | A K | 34 | 40 |
| 3 | A O | 25 | 33 |
| 4 | D P | 31 | 41 |
| 5 | K S | 32 | 36 |
| 6 | L A | 39 | 42 |
| 7 | M F R | 28 | 34 |
| 8 | M F | 23 | 38 |
| 9 | M A I | 22 | 31 |
| 10 | M H H | 26 | 33 |
| 11 | N Z | 35 | 40 |
| 12 | N H I | 26 | 37 |
| 13 | R B S | 35 | 41 |
| 14 | R D | 22 | 30 |
| 15 | S N | 33 | 36 |

Lampiran 3

DAFTAR HADIR SELURUH SAMPEL PENELITIAN

| NO | NAMA | PERTEMUAN | | | |
|----|---------|----------------|----------------|----------------|----------------|
| | | APRIL | | MEI | |
| | | Tanggal 7&9 | Tanggal 7&9 | Tanggal 7&9 | Tanggal 7&9 |
| 1 | A C D | √ | √ | √ | √ |
| 2 | A H | √ | √ | √ | √ |
| 3 | A S | √ | √ | √ | √ |
| 4 | A P N | √ | √ | √ | √ |
| 5 | A S N F | √ | √ | √ | √ |
| 6 | F A | √ | √ | √ | √ |
| 7 | M R C | √ | √ | √ | √ |
| 8 | M E N | √ | √ | √ | √ |
| 9 | N A | √ | √ | √ | √ |
| 10 | R R | √ | √ | √ | √ |
| 11 | R G | √ | √ | √ | √ |
| 12 | R D A | √ | √ | √ | √ |
| 13 | S A R | √ | √ | √ | √ |
| 14 | S K | √ | √ | √ | √ |
| 15 | V W L | √ | √ | √ | √ |

Lampiran 4

Deskripsi Data

Servis Atas Bola Voli Kelompok Metode Megajar Resiprokal Tes Awal

| No. | X | X ² |
|-------|-----|----------------|
| 1 | 30 | 900 |
| 2 | 37 | 1369 |
| 3 | 24 | 576 |
| 4 | 31 | 961 |
| 5 | 27 | 729 |
| 6 | 39 | 1521 |
| 7 | 29 | 841 |
| 8 | 31 | 961 |
| 9 | 20 | 400 |
| 10 | 30 | 900 |
| 11 | 26 | 676 |
| 12 | 22 | 484 |
| 13 | 27 | 729 |
| 14 | 32 | 1024 |
| 15 | 36 | 1296 |
| Total | 441 | 13367 |

Rata-rata

$$\begin{aligned}\bar{X} &= \frac{\sum X}{n} \\ &= \frac{441}{15} = 29,4\end{aligned}$$

$$\begin{aligned}S^2 &= \frac{n \cdot \sum X^2 - (\sum X)^2}{n \cdot (n-1)} \\ &= \frac{15 \cdot 13367 - (441)^2}{15 \cdot (15-1)} \\ &= \frac{200505 - 194481}{210} \\ &= 28.286\end{aligned}$$

$$\begin{aligned}S^2 &= \sqrt{S^2} \\ &= \sqrt{28.286} \\ &= 5,356\end{aligned}$$

Table Distribusi Frekuensi

Menentukan Rentang (R)

$$\begin{aligned} R &= \text{Max} - \text{Min} \\ &= 39 - 20 \\ &= 19 \end{aligned}$$

Menentukan Banyaknya Kelas (K)

$$\begin{aligned} K &= 1 + 3,3 (\log n) \\ &= 1 + 3,3 (\log 15) \\ &= 1 + 3,88 \\ &= 4,88 = 5 \end{aligned}$$

Panjang kelas (P)

$$P = \frac{R}{K} = \frac{19}{5} = 3,8$$

| NO | INTERVAL | TITIK TENGAH | FREKUENSI ABSOLUT | FREKUENSI RELATIF |
|-------|----------|--------------|-------------------|-------------------|
| 1 | 20 – 23 | 21,5 | 2 | 13,33 |
| 2 | 24 – 28 | 25,5 | 4 | 26,67 |
| 3 | 28 – 31 | 29,5 | 5 | 33,33 |
| 4 | 32 – 35 | 33,5 | 1 | 6,67 |
| 5 | 36 – 39 | 37,5 | 3 | 20,00 |
| Total | | | 15 | 100 |

Servis Atas Bola VOliKelompokMetodeMegajarResiprokaltesakhir

| No. | X | X ² |
|-------|-----|----------------|
| 1 | 31 | 961 |
| 2 | 39 | 1521 |
| 3 | 28 | 784 |
| 4 | 31 | 961 |
| 5 | 30 | 900 |
| 6 | 40 | 1600 |
| 7 | 30 | 900 |
| 8 | 31 | 961 |
| 9 | 26 | 676 |
| 10 | 30 | 900 |
| 11 | 28 | 784 |
| 12 | 27 | 729 |
| 13 | 29 | 841 |
| 14 | 37 | 1369 |
| 15 | 37 | 1369 |
| Total | 474 | 15256 |

Rata-rata

$$\begin{aligned}\bar{X} &= \frac{\sum X}{n} \\ &= \frac{474}{15} = 31,6\end{aligned}$$

$$\begin{aligned}S^2 &= \frac{n \cdot \sum X^2 - (\sum X)^2}{n \cdot (n-1)} & S^2 &= \sqrt{S^2} \\ &= \frac{15 \cdot 15256 - (474)^2}{15 \cdot (15-1)} & &= \sqrt{19,829} \\ &= \frac{228840 - 224676}{210} = 4,453\end{aligned}$$

$$= 19,829$$

Table Distribusi Frekuensi

Menentukan Rentang (R)

$$\begin{aligned} R &= \text{Max} - \text{Min} \\ &= 40 - 26 \\ &= 14 \end{aligned}$$

Menentukan Banyaknya Kelas (K)

$$\begin{aligned} K &= 1 + 3,3 (\log n) \\ &= 1 + 3,3 (\log 15) \\ &= 1 + 3,88 \\ &= 4,88 = 5 \end{aligned}$$

Panjang kelas (P)

$$P = \frac{R}{K} = \frac{14}{5} = 2,8$$

| NO | INTERVAL | TITIK TENGAH | FREKUENSI ABSOLUT | FREKUENSI RELATIF |
|-------|----------|--------------|-------------------|-------------------|
| 1 | 26 – 28 | 27 | 4 | 26,67 |
| 2 | 29 – 31 | 30 | 4 | 26,67 |
| 3 | 32 – 34 | 33 | 3 | 20,00 |
| 4 | 35 – 37 | 36 | 2 | 13,33 |
| 5 | 38 – 40 | 39 | 2 | 13,33 |
| Total | | | 15 | 100 |

Lampiran 5

Servis Atas Bola Voli Kelompok Metode Megajar Komando Tes Awal

| No. | X | X ² |
|-------|-----|----------------|
| 1 | 40 | 1600 |
| 2 | 34 | 1156 |
| 3 | 25 | 625 |
| 4 | 31 | 961 |
| 5 | 32 | 1024 |
| 6 | 39 | 1521 |
| 7 | 28 | 784 |
| 8 | 23 | 529 |
| 9 | 22 | 484 |
| 10 | 26 | 676 |
| 11 | 35 | 1225 |
| 12 | 26 | 676 |
| 13 | 35 | 1225 |
| 14 | 22 | 484 |
| 15 | 33 | 1089 |
| Total | 451 | 14059 |

Rata-rata

$$\bar{X} = \frac{\sum X}{n}$$

$$= \frac{451}{15} = 30,06$$

$$S^2 = \frac{n \cdot \sum X^2 - (\sum X)^2}{n \cdot (n-1)}$$

$$S^2 = \sqrt{S^2}$$

$$= \frac{15 \cdot 14059 - (451)^2}{15 \cdot (15-1)} = \sqrt{35,638}$$

$$= \frac{210885 - 203401}{210} = 5,970$$

$$= 35,638$$

Table Distribusi Frekuensi

Menentukan Rentang (R)

$$\begin{aligned} R &= \text{Max} - \text{Min} \\ &= 40 - 22 \\ &= 18 \end{aligned}$$

Menentukan Banyaknya Kelas (K)

$$\begin{aligned} K &= 1 + 3,3 (\log n) \\ &= 1 + 3,3 (\log 15) \\ &= 1 + 3,88 \\ &= 4,88 = 5 \end{aligned}$$

Panjang kelas (P)

$$P = \frac{R}{K} = \frac{18}{5} = 3,6$$

| NO | INTERVAL | TITIK TENGAH | FREKUENSI ABSOLUT | FREKUENSI RELATIF |
|-------|----------|--------------|-------------------|-------------------|
| 1 | 22 – 25 | 23,5 | 4 | 26,67 |
| 2 | 26 – 29 | 27,5 | 3 | 20,00 |
| 3 | 30 – 33 | 31,5 | 3 | 20,00 |
| 4 | 34 – 37 | 35,5 | 3 | 20,00 |
| 5 | 38 - 41 | 39,5 | 2 | 13,33 |
| Total | | | 15 | 100 |

Servis Atas Bola Voli Kelompok Metode Mengajar Komando Tes Awal

| No. | X | X ² |
|-------|-----|----------------|
| 1 | 44 | 1936 |
| 2 | 40 | 1600 |
| 3 | 33 | 1089 |
| 4 | 41 | 1681 |
| 5 | 36 | 1296 |
| 6 | 42 | 1764 |
| 7 | 34 | 1156 |
| 8 | 38 | 1444 |
| 9 | 31 | 961 |
| 10 | 33 | 1089 |
| 11 | 40 | 1600 |
| 12 | 37 | 1369 |
| 13 | 41 | 1681 |
| 14 | 30 | 900 |
| 15 | 36 | 1296 |
| Total | 556 | 20862 |

Rata-rata

$$\bar{X} = \frac{\sum X}{n}$$

$$= \frac{451}{15} = 30,06$$

$$S^2 = \frac{n \cdot \sum X^2 - (\sum X)^2}{n \cdot (n-1)}$$

$$S^2 = \sqrt{S^2}$$

$$= \frac{15 \cdot 20862 - (556)^2}{15 \cdot (15-1)} = \sqrt{18,067}$$

$$= \frac{312930 - 309136}{210} = 4,250$$

$$= 18,067$$

Table Distribusi Frekuensi

Menentukan Rentang (R)

$$\begin{aligned} R &= \text{Max} - \text{Min} \\ &= 44 - 30 \\ &= 14 \end{aligned}$$

Menentukan Banyaknya Kelas (K)

$$\begin{aligned} K &= 1 + 3,3 (\log n) \\ &= 1 + 3,3 (\log 15) \\ &= 1 + 3,88 \\ &= 4,88 = 5 \end{aligned}$$

Panjang kelas (P)

$$P = \frac{R}{K} = \frac{14}{5} = 2,8$$

| NO | INTERVAL | TITIK TENGAH | FREKUENSI ABSOLUT | FREKUENSI RELATIF |
|-------|----------|--------------|-------------------|-------------------|
| 1 | 30 – 32 | 31 | 2 | 13,33 |
| 2 | 33 – 35 | 34 | 3 | 20,00 |
| 3 | 36 – 38 | 37 | 4 | 26,67 |
| 4 | 39 – 41 | 40 | 4 | 26,67 |
| 5 | 42 – 44 | 43 | 2 | 13,33 |
| Total | | | 15 | 100 |

Lampiran 6

Perhitungan Uji-t Metode Mengajar Resiprokal

| No .Resp | Awal (X ₁) | Akhir (X ₂) | D (X ₁ - x ₂) | D ² |
|----------|------------------------|-------------------------|--------------------------------------|----------------|
| 1 | 30 | 31 | 1 | 1 |
| 2 | 27 | 39 | 2 | 4 |
| 3 | 24 | 28 | 4 | 16 |
| 4 | 31 | 31 | 0 | 0 |
| 5 | 27 | 32 | 5 | 25 |
| 6 | 39 | 40 | 1 | 1 |
| 7 | 29 | 34 | 5 | 25 |
| 8 | 31 | 31 | 0 | 0 |
| 9 | 20 | 26 | 6 | 36 |
| 10 | 30 | 33 | 3 | 9 |
| 11 | 26 | 28 | 2 | 4 |
| 12 | 22 | 27 | 5 | 25 |
| 13 | 27 | 29 | 2 | 4 |
| 14 | 32 | 37 | 5 | 25 |
| 15 | 36 | 27 | 1 | 1 |
| Jumlah | 441 | 483 | 42 | 176 |

Diketahui :

$$\begin{aligned}\Sigma X &= 42 \\ \Sigma X^2 &= 176\end{aligned}$$

Dicari

$$M_D = \frac{\Sigma D}{n} = \frac{42}{15} = 2,800$$

$$Sd_D = \sqrt{\frac{\Sigma D^2}{N} - \left(\frac{\Sigma D}{n}\right)^2}$$

$$= \sqrt{\frac{176}{15} - \left(\frac{42}{15}\right)^2}$$

$$= \sqrt{11,733 - 2,800^2} = \sqrt{3,893} = 1,973$$

$$SE_{MD} = \frac{SD_D}{\sqrt{n-1}}$$

$$= \frac{1,973}{\sqrt{15-1}}$$

$$= \frac{1,973}{3,742}$$

$$= 0,527$$

$$t_0 = \frac{M_D}{SE_{MD}}$$

$$= \frac{2,800}{0,527}$$

$$= 5,310$$

Mencari t_{table} :

$$= (a ; n-1)$$

$$= (0,05 ; 14)$$

$$= 1,76$$

Dari data tersebut diperoleh $t_{table} (5,310) > t_{table} (1,76)$, sehingga dapat disimpulkan bahwa terjadi peningkatan antes awal dengan antes akhir yang signifikan pada servis atas bola voli kelompok metode mengajar resiprokal di SMA Muhammadiyah 13 Jakarta.

Lampiran 7

Perhitungan Uji-t Metode Mengajar Komando

| No .Resp | Awal (X ₁) | Akhir (X ₂) | D (X ₁ - x ₂) | D ² |
|----------|------------------------|-------------------------|--------------------------------------|----------------|
| 1 | 40 | 44 | 4 | 16 |
| 2 | 34 | 40 | 6 | 36 |
| 3 | 25 | 33 | 8 | 64 |
| 4 | 31 | 41 | 10 | 100 |
| 5 | 32 | 36 | 4 | 16 |
| 6 | 39 | 42 | 3 | 9 |
| 7 | 28 | 34 | 6 | 36 |
| 8 | 23 | 38 | 15 | 225 |
| 9 | 22 | 31 | 9 | 81 |
| 10 | 26 | 33 | 7 | 49 |
| 11 | 35 | 40 | 5 | 25 |
| 12 | 26 | 37 | 11 | 121 |
| 13 | 35 | 41 | 6 | 36 |
| 14 | 22 | 30 | 8 | 64 |
| 15 | 33 | 36 | 3 | 9 |
| Jumlah | 451 | 556 | 105 | 887 |

Diketahui :

$$\Sigma X = 105$$

$$\Sigma X^2 = 887$$

Dicari

$$M_D = \frac{\Sigma D}{n} = \frac{105}{15} = 7,000$$

$$Sd_D = \sqrt{\frac{\Sigma D^2}{N} - \left(\frac{\Sigma D}{n}\right)^2}$$

$$= \sqrt{\frac{887}{15} - \left(\frac{105}{15}\right)^2}$$

$$= \sqrt{59,133 - 7,0000^2} = \sqrt{10,133} = 3,183$$

$$SE_{MD} = \frac{SD_D}{\sqrt{n-1}}$$

$$= \frac{3,183}{\sqrt{15-1}}$$

$$= \frac{3,183}{3,742}$$

$$= 0,851$$

$$t_0 = \frac{M_D}{SE_{MD}}$$

$$= \frac{7,000}{0,851}$$

$$= 8,228$$

Mencari t_{table} :

$$= (a ; n-1)$$

$$= (0,05 ; 14)$$

$$= 1,76$$

Dari data tersebut diperoleh $t_{table} (8,228) > t_{table} (1,76)$,
 sehingga dapat disimpulkan bahwa terdapat peningkatan antesawaldengantesakh
 ir yang signifikan pada servis atas bola
 voli kelompok metode mengajar Komando di SMA Muhammadiyah 13
 Jakarta.

Lampiran8

Perhitungan Uji-t (perbandingan servis atas bola voli dengan metode mengajar resiprokal dan servis atas bola voli dengan metode mengajar komando)

| No .Resp | X | Y | X ² | Y ² |
|-------------|-----|-----|----------------|----------------|
| 1 | 31 | 44 | 961 | 1936 |
| 2 | 39 | 40 | 1521 | 1600 |
| 3 | 28 | 33 | 784 | 1089 |
| 4 | 31 | 41 | 961 | 1681 |
| 5 | 32 | 36 | 1024 | 1296 |
| 6 | 40 | 42 | 1600 | 1764 |
| 7 | 34 | 34 | 1156 | 1156 |
| 8 | 31 | 38 | 961 | 1444 |
| 9 | 26 | 31 | 676 | 961 |
| 10 | 33 | 33 | 1089 | 1089 |
| 11 | 28 | 40 | 784 | 1600 |
| 12 | 27 | 37 | 729 | 1369 |
| 13 | 29 | 41 | 841 | 1681 |
| 14 | 37 | 30 | 1369 | 900 |
| 15 | 37 | 36 | 1369 | 1296 |
| Jumlah | 483 | 556 | 15825 | 20862 |

Diketahui

$$n_x = 15$$

$$n_y = 15$$

$$\Sigma X = 483$$

$$\Sigma Y = 556$$

$$\Sigma X^2 = 15825$$

$$\Sigma Y^2 = 20862$$

Dicari:

$$\begin{aligned}\overline{X} &= \frac{\Sigma X}{n} \\ &= \frac{474}{15} = 31,60\end{aligned}$$

$$\begin{aligned}Sx^2 &= \frac{n.\Sigma X^2 - (\Sigma Y)^2}{n.(n-1)} \\ &= \frac{15 \cdot 15256 - (474)^2}{15 \cdot (15-1)} \\ &= \frac{228840 - 224676}{210} \\ &= 19,829\end{aligned}$$

$$\begin{aligned}\overline{Y} &= \frac{\Sigma X}{n} \\ &= \frac{556}{15} = 37,07\end{aligned}$$

$$\begin{aligned}Sx^2 &= \frac{n.\Sigma X^2 - (\Sigma Y)^2}{n.(n-1)} \\ &= \frac{15 \cdot 20860 - (556)^2}{15 \cdot (15-1)} \\ &= \frac{312930 - 309136}{210} \\ &= 18,069\end{aligned}$$

Standar Kesalahan

$$SDm_x = \frac{SD_x}{\sqrt{n-1}}$$

$$= \frac{19,46}{\sqrt{15-1}}$$

$$= 1,30$$

$$SDm_y = \frac{SD_y}{\sqrt{n-1}}$$

$$= \frac{18,07}{\sqrt{15-1}}$$

$$= 1,20$$

$$Sem_1 - Sem_2 = \sqrt{(Sem_1)^2 + (Sem_2)^2}$$

$$= \sqrt{1,30 + 1,20}$$

$$= 2,501$$

$$= 1,58$$

$$T_o = \frac{M_x - M_y}{SE_{m_1 - m_2}}$$

$$= \frac{32,20 - 37,07}{1,58}$$

$$= \frac{4,87}{1,58}$$

$$= \frac{4,87}{1,58}$$

$$= 3,08$$

Mencari t_{tabel} :

$$= (1/2\alpha ; n-2)$$

$$= (0,025 ; 13)$$

$$= 2,16$$

Dari data tersebut diperoleh $t_{hitung} (3,08) > t_{tabel} (2,16)$, sehingga dapat disimpulkan bahwa terjadi peningkatan yang signifikan antara servis atas bola voli dengan gaya mengajar respirokral dan servis atas bola voli dengan gaya mengajar Komando.