

## Lampiran 15

### Data Nilai Tes Ulangan Harian Ke-3 Kelas XI IPA 1

No.	Kode Siswa	Nilai	No.	Kode Siswa	Nilai
1	A	93	20	J	72
2	C	86	21	K	72
3	E	86	22	R	72
4	G	85	23	S	72
5	H	81	24	AF	72
6	L	80	25	AJ	72
7	M	80	26	V	71
8	N	80	27	AB	71
9	O	79	28	W	68
10	P	78	29	AC	67
11	Q	78	30	AG	67
12	T	78	31	AI	67
13	B	75	32	AL	67
14	U	75	33	Y	66
15	X	75	34	Z	66
16	AA	75	35	AK	66
17	AD	75	36	F	63
18	AE	73	37	AH	63
19	D	72	38	I	58

Rentang = data terbesar-data terkecil =  $93-58 = 38$

Jumlah Kelas Interval (K) =  $1+3,3 \log n = 1+3,3 \log 38 = 6,213 \approx 6$

Panjang Kelas (P) = rentang : jumlah kelas interval =  $5,633 \approx 6$

No	Interval	$f_i$	$x_i$	$f_i \cdot x_i$	$x_i - \bar{x}$	$(x_i - \bar{x})^2$	$f_i (x_i - \bar{x})^2$
1	58-63	3	60,5	181,5	-12,474	155,601	466,802
2	64-69	8	66,5	532	-6,474	41,913	335,301
3	70-75	15	72,5	1087,5	-0,474	0,225	3,370
4	76-81	8	78,5	628	5,526	30,537	244,293
5	82-87	3	84,5	253,5	11,526	132,849	398,546
6	88-93	1	90,5	90,5	17,526	307,161	307,161
$\Sigma$		38	453	2773		668,284	1755,474

$$\text{Mean} = \frac{\sum f_i x_i}{f_i} = \frac{2773}{38} = 72,974$$

$$\text{Standar deviasi (s)} = \sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{(n-1)}} = \sqrt{\frac{1755,474}{(38-1)}} = 6,888$$

$$\text{varians sampel} = s^2 = 6,888^2 = 47,445$$

## Lampiran 16

### Data Nilai Ulangan Harian Ke-3 Kelas XI IPA 3

No.	Kode Siswa	Nilai	No.	Kode Siswa	Nilai
1	C	91	20	R	71
2	D	91	21	AI	71
3	N	82	22	M	70
4	O	82	23	Q	70
5	P	82	24	W	70
6	V	82	25	AL	70
7	AB	82	26	E	68
8	AD	80	27	K	66
9	A	78	28	S	66
10	G	78	29	AJ	66
11	T	77	30	L	65
12	Z	77	31	AH	65
13	AF	77	32	B	61
14	AE	75	33	I	60
15	AK	75	34	AC	60
16	U	73	35	J	57
17	X	73	36	AG	56
18	F	71	37	AA	52
19	H	71	38	Y	44

Rentang = data terbesar-data terkecil = 91-44 = 47

Jumlah Kelas Interval (K) =  $1+3,3 \log n = 1+3,3 \log 36 = 6,213 \approx 6$

Panjang Kelas (P) = rentang : jumlah kelas interval =  $7,564 \approx 8$

No	Interval	$f_i$	$x_i$	$f_i \cdot x_i$	$x_i - \bar{x}$	$(x_i - \bar{x})^2$	$f_i (x_i - \bar{x})^2$
1	44-51	1	47,5	47,5	-23,579	555,969	555,969
2	52-59	3	55,5	166,5	-15,579	242,705	728,116
3	60-67	8	63,5	508	-7,579	57,441	459,530
4	68-75	13	71,5	929,5	0,421	0,177	2,304
5	76-83	11	79,5	874,5	8,421	70,913	780,046
6	84-91	2	87,5	175	16,421	269,649	539,298
$\Sigma$		38	405	2701		1196,855	3065,263

$$\text{Mean} = \frac{\sum f_i x_i}{\sum f_i} = \frac{2701}{38} = 71,079$$

$$\text{Standar deviasi (s)} = \sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{(n-1)}} = \sqrt{\frac{3065,263}{(38-1)}} = 9,102$$

$$\text{varians sampel} = s^2 = 9,102^2 = 82,845$$

## Lampiran 17

### Uji Normalitas Sampel

#### Kelas XI IPA 1

Rentang = data terbesar-data terkecil =  $93-58 = 38$

Jumlah Kelas Interval (K) = 6

Panjang Kelas (P) = rentang : jumlah kelas interval =  $5,833 \approx 6$

Interval	$f_o$	$f_h$	$f_o-f_h$	$(f_o-f_h)^2$	$\frac{(f_o-f_h)^2}{f_h}$
58-63	3	1	2	4	4
64-69	8	5	3	9	1,800
70-75	15	13	2	4	0,308
76-81	8	13	-5	25	1,923
82-87	3	5	-2	4	0,800
88-93	1	1	0	0	0
$\Sigma$	38	38	0	46	8,831
$\chi$ tabel, dk = 5				= 11,070	
Status				berdistribusi normal	

#### Kelas XI IPA 3

Rentang = data terbesar-data terkecil =  $91-44 = 47$

Jumlah Kelas Interval (K) = 6

Panjang Kelas (P) = rentang : jumlah kelas interval =  $7,833 \approx 8$

Interval	$f_o$	$f_h$	$f_o-f_h$	$(f_o-f_h)^2$	$\frac{(f_o-f_h)^2}{f_h}$
44-51	1	1	0	0	0
52-59	3	5	-2	4	0,800
60-67	8	13	-5	25	1,923
68-75	13	13	0	0	0
76-83	11	5	6	36	7,200
84-91	2	1	1	1	1
$\Sigma$	38	38	0	66	10,923
$\chi$ tabel, dk = 5				= 11,070	
Status				berdistribusi normal	

Dimana:  $\chi^2 = \sum_{i=1}^k \frac{(f_o-f_h)^2}{f_h}$  keterangan  $\chi^2$  = Normalitas Chi Kuadrat

$f_o$  = frekuensi yang diamati ,  $f_h$  = frekuensi yang diharapkan

## Lampiran 18

### Uji Homogenitas Sampel

#### Uji Homogenitas

Kelas	$\bar{x}$	$\sum f_i (x_i - \bar{x})^2$	(n-1)	S	$S^2$
XI IPA I	72,974	1755,474	37	6,888	47,445
XI IPA III	71,079	3065,263	37	9,102	82,845

$$F_{\text{hitung}} = \frac{\text{varians terbesar}}{\text{varians terkecil}} = \frac{s^2_{\text{XI IPA III}}}{s^2_{\text{XI IPA I}}} = \frac{82,845}{47,445} = 1,75$$

$F_{\text{tabel}} (\alpha = 0,05)$  dk pembilang (37) ada diantara dk (30) = 1,78 dan dk (40) = 1,72

$$\text{maka } dk(37) = 1,78 + \frac{37 - 30}{40 - 30} \times (1,78 - 1,72) = 1,822$$

$F_{\text{tabel}} (\alpha = 0,05)$  dk penyebut (37) ada diantara dk (36) = 1,78 dan dk (38) = 1,76

$$\text{maka } dk(37) = 1,78 + \frac{37 - 36}{38 - 36} \times (1,78 - 1,76) = 1,79$$

<b>Jadi <math>F_{\text{tabel}} (\alpha = 0,05, dk_{\text{pembilang}} = dk_{\text{penyebut}} = 37)</math></b>	<b>1,79</b>
<b>Perbandingan</b>	<b><math>F_{\text{hitung}} \leq F_{\text{tabel}} = 1,75 \leq 1,79</math></b>
<b>Status</b>	<b>Homogen</b>