

Nama : Andri Firman Saputra

NIM : 201011402125

Kelas : 04 TPLP 016

Tugas Pemahaman dan Review

Usilah data di bawah ini apakah berdistribusi normal atau tidak

Nilai	fi	xi	xi ²	fi · xi	fi · xi ²
50-59	22	54,5	2970,25	1.199	65.345,5
60-69	16	64,5	4.160,25	1.032	66.564
70-79	7	74,5	5.550,25	521,5	38.851,75
80-89	2	84,5	7.140,25	169	14.280,5
90-99	3	94,5	8.930,25	283,5	26.790,75
Jumlah	50			3.205	211.832,5

$$\bar{x} = \frac{\sum f_i x_i}{\sum f_i} = \frac{3.205}{50} = 64,1$$

$$SD = \sqrt{\frac{\sum f_i x_i^2}{n} - \left(\frac{\sum f_i x_i}{n}\right)^2}$$
$$= \sqrt{\frac{211.832,5}{50} - \left(\frac{3.205}{50}\right)^2}$$

$$= \sqrt{4.236,65 - (64,1)^2}$$

$$= \sqrt{4.236,65 - 4.108,81}$$

$$= \sqrt{127,84}$$

$$= 11,306$$

Tabel Bantu

Batas Interval kelas	Z	Pi	O _i	E _i	$\frac{(O_i - E_i)^2}{E_i}$
49,5 dan 59,5	-1,29 dan -0,40	0,2461	22	12,305	
59,5 dan 69,5	-0,40 dan 0,47	0,3362	16	16,81	
69,5 dan 79,5	0,47 dan 1,36	-0,2323	7	-11,615	
79,5 dan 89,5	1,36 dan 2,24	-0,0744	2	-3,72	
89,5 dan 99,5	2,24 dan 3,13	-0,0116	3	-0,58	
Jumlah					

Menghitung Nilai Z

Batas Bawah

$$Z_1 = \frac{49,5 - 64,1}{11,30} = -1,29$$

$$Z_2 = \frac{59,5 - 64,1}{11,30} = -0,40$$

$$Z_3 = \frac{69,5 - 64,1}{11,30} = 0,47$$

$$Z_4 = \frac{79,5 - 64,1}{11,30} = 1,36$$

$$Z_5 = \frac{89,5 - 64,1}{11,30} = 2,24$$

Batas Akhir

$$Z_1 = \frac{59,5 - 64,1}{11,30} = -0,40$$

$$Z_2 = \frac{69,5 - 64,1}{11,30} = 0,47$$

$$Z_3 = \frac{79,5 - 64,1}{11,30} = 1,36$$

$$Z_4 = \frac{89,5 - 64,1}{11,30} = 2,24$$

$$Z_5 = \frac{99,5 - 64,1}{11,30} = 3,13$$

Menghitung Pi

$$P_{i1} = 0,4015 - 0,1554 = 0,2461$$

$$P_{i2} = 0,1554 + 0,1808 = 0,3362$$

$$P_{i3} = 0,1808 - 0,4131 = -0,2323$$

$$P_{i4} = 0,4131 - 0,4875 = -0,0744$$

$$P_{i5} = 0,4875 - 0,4991 = -0,0116$$

Menghitung E_i

$$E_1 = 0,2461 \times 50 = 12,305$$

$$E_2 = 0,3362 \times 50 = 16,81$$

$$E_3 = -0,2323 \times 50 = -11,615$$

$$E_4 = -0,0744 \times 50 = -3,72$$

$$E_5 = -0,0116 \times 50 = -0,58$$

Mencari χ^2

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2 = \frac{(22 - 12,305)^2}{12,305} + \frac{(16 - 16,81)^2}{16,81} + \frac{(7 + 11,615)^2}{-11,615} + \frac{(2 + 3,72)^2}{-3,72} +$$

$$\frac{(3 + 0,58)^2}{-0,58}$$

$$= 7,6386 + 0,0390 + (-29,8336) + (-8,7952) + (-22,0972) \\ = -53,0484 //$$

Cari χ^2 tabel

$$\chi^2 (\alpha, dk)$$

$$dk = k - 3$$

$$dk = 5 - 3$$

$$dk = 2$$

$$\alpha = 5\%$$

$$\chi^2 \text{ tabel} = 5,99 //$$

Kesimpulan

$$-53,0484 < 5,99, \text{ Maka } H_0 \text{ diterima}$$

Data berdistribusi normal