

Herlawati

## Pembahasan Latihan Soal Ukuran Dispersi

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1. Range dari data 70, 50, 20, 90 adalah ...

Jawab:

$$R = N_{\max} - N_{\min}$$

$$R = 90 - 20 = 70$$

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2. Simpangan Rata-rata dari 10, 20, 60, 90 adalah ...

Jawab:

Rata-rata Hitung:

$$\bar{x} = \frac{\sum x}{n} = \frac{180}{4} = 45$$

Simpangan Rata-rata:

$$SR = \frac{1}{n} \sum |x - \bar{x}| = \frac{1}{4} \{ |10-45| + |20-45| + |60-45| + |90-45| \}$$

$$SR = \frac{1}{4} \{ 35 + 25 + 15 + 45 \} = \frac{1}{4} \cdot 120 = 30$$

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3. Variasi dan simpangan baku dari 10, 20, 60, 90 adalah ...

Jawab:

Rata-rata Hitung:

$$\bar{x} = \frac{\sum x}{n} = \frac{180}{4} = 45$$

Variansi:

$$S^2 = \frac{1}{n-1} \sum (x - \bar{x})^2 = \frac{1}{4-1} \{ (10-45)^2 + (20-45)^2 + (60-45)^2 + (90-45)^2 \}$$

$$S^2 = \frac{1}{3} \{ 1225 + 625 + 225 + 2025 \} = \frac{1}{3} \cdot 4100 = 1366,6$$

Simpangan Baku:

$$S = \sqrt{S^2} = \sqrt{1366,6} = 36,96$$

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4. Jangkauan Kuartil dari data 2, 4, 5, 8, 15, 20 adalah ...

Jawab:

$$Q_1 = \frac{1(6+1)}{4} = \frac{1,7}{4} = \frac{7}{4} = 1,75$$

$$Q_1 = x_1 + 0,75(x_2 - x_1)$$

$$Q_1 = 2 + 0,75(4 - 2) = 3,5$$

$$Q_3 = \frac{3(6+1)}{4} = \frac{3,7}{4} = \frac{21}{4} = 5,25$$

$$Q_3 = x_5 + 0,25(x_6 - x_5)$$

$$Q_3 = 15 + 0,25(20 - 15) = 16,25$$

maka:

$$JK = \frac{1}{2}(Q_3 - Q_1)$$

$$JK = \frac{1}{2}(16,25 - 3,5)$$

$$JK = \frac{1}{2}(12,75) = 6,375$$

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5. Jangkauan Persentil dari data 2, 4, 5, 8, 15, 20 adalah ...

Jawab:

$$P_{10} = \frac{10(6+1)}{100} = \frac{10,7}{100} = \frac{70}{100} = 0,7$$

$$P_{10} = x_0 + 0,7(x_1 - x_0)$$

$$P_{10} = 0 + 0,7(2 - 0) = 1,4$$

$$P_{90} = \frac{90(6+1)}{100} = \frac{90,7}{100} = \frac{630}{100} = 6,3$$

$$P_{90} = x_6 + 0,3(x_7 - x_6)$$

$$P_{90} = 20 + 0,3(20 - 15) = 14$$

maka :

$$JP = P_{90} - P_{10}$$

$$JP = 14 - 1,4$$

$$JP = 12,6$$

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