

## Rataan dengan Rataan Sementara

Berdasarkan rumus rataan (mean) data berkelompok, kita dapat menurunkan rumus rataan menggunakan rataan sementara, yaitu

$$\begin{aligned} \bar{x} &= \frac{\sum_{i=1}^k f_i x_i}{\sum_{i=1}^k f_i} = \frac{f_1 x_1 + f_2 x_2 + \dots + f_k x_k}{f_1 + f_2 + \dots + f_k} \\ &= \frac{f_1 (x_1 - \bar{x}_s) + f_1 \bar{x}_s + f_2 (x_2 - \bar{x}_s) + f_2 \bar{x}_s + \dots + f_k (x_k - \bar{x}_s) + f_k \bar{x}_s}{f_1 + f_2 + \dots + f_k} \\ &= \frac{(f_1 \bar{x}_s + f_2 \bar{x}_s + \dots + f_k \bar{x}_s) + (f_1 (x_1 - \bar{x}_s) + f_2 (x_2 - \bar{x}_s) + \dots + f_k (x_k - \bar{x}_s))}{f_1 + f_2 + \dots + f_k} \\ &= \frac{\bar{x}_s (f_1 + f_2 + \dots + f_k)}{f_1 + f_2 + \dots + f_k} + \frac{f_1 (x_1 - \bar{x}_s) + f_2 (x_2 - \bar{x}_s) + \dots + f_k (x_k - \bar{x}_s)}{f_1 + f_2 + \dots + f_k} \\ &= \bar{x}_s + \frac{\sum_{i=1}^k f_i (x_i - \bar{x}_s)}{\sum_{i=1}^k f_i} \\ &= \bar{x}_s + \frac{\sum_{i=1}^k f_i d_i}{\sum_{i=1}^k f_i} \end{aligned}$$

Jadi,

$$\bar{x} = \bar{x}_s + \frac{\sum_{i=1}^k f_i d_i}{\sum_{i=1}^k f_i}$$

catatan:

- ⊗  $\bar{x}_s$  = rataan sementara, dipilih lebih dahulu, biasanya sekitar nilai median atau  $x_1$  dgn frekuensi terbesar dan boleh lainnya.
- ⊗  $f_i (x_i - \bar{x}_s) + f_i \bar{x}_s = f_i x_i - f_i \bar{x}_s + f_i \bar{x}_s = f_i x_i$
- ⊗  $d_i = (x_i - \bar{x}_s)$
- ⊗ dengan bentuk tabel:

interval	$f_i$	$x_i$	$d_i$	$f_i d_i$
-	jmlh	-	-	jmlh

