

Diketahui = target ball bearing = 0.75 inch, BA = 0.76, BB = 0.74 (inch)

Rata-rata (μ) = 0.753 inch, $G = 0.004$ inch

a. $P(\text{Target} < x < \text{rata-rata Aktual}) = P(0.75 < x < 0.753)$

$$z_1 = \frac{x - \mu}{G}$$

$$= \frac{0.75 - 0.753}{0.004}$$

$z_2 = 0$ krn $x = \mu$
 \hookrightarrow di tabel z 0.5000

$$= \frac{-0.003}{0.004}$$

$P(0.75 < x < 0.753) = P(-0.75 < z < 0)$

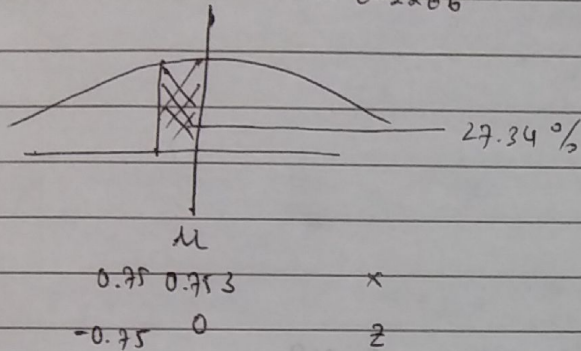
$= P(z < 0) - P(z > -0.75)$

$= 0.5000 - 0.2266$

$= 0.2734$

$= 27.34\%$

$= -0.75 \rightarrow$ di tabel z 0.2266



b. $P(BB < x < \text{target}) = P(0.74 < x < 0.75)$

$$z_1 = \frac{x - \mu}{G}$$

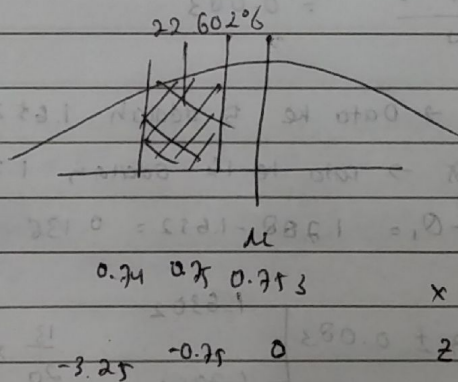
$z_2 = 0.75 = -0.75$ (lihat a.)

\hookrightarrow di tabel z 0.2266

$$= \frac{0.74 - 0.753}{0.004}$$

$= -3.25$

\hookrightarrow di tabel z 0.00058

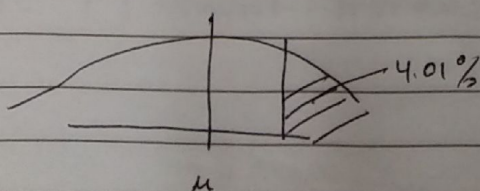


$P(0.74 < x < 0.75) = P(-3.25 < z < -0.75) = 0.2266 - 0.00058$

$= 0.22602$

$= 22.602\%$

c. $P(x > BA) = P(x > 0.76)$



$$z = \frac{x - \mu}{G}$$

$$= \frac{0.76 - 0.753}{0.004}$$

$= 1.75$

$= 1.75$

\hookrightarrow di Tabel z 0.9599

$P(x > BA) = 1 - P(x < BA)$

$= 1 - 0.9599$

$= 0.0401$

$= 4.01\%$



3. Class	Frequency	Percentage (%)	Cumulative Percentage
100 up to 125	2	5.88	5.88
125	5	14.90	20.50
150	10	29.41	49.99
175	9	26.47	76.47
200	4	11.76	88.23
225	4	11.76	99.99

↳ aturan 5001

SKIP Gambar

Ingat Histogram
 X nya berupa persentase
 X nya mid point
 D give X nya Lower class point
 Y nya %/s cumulative

4) $P(\text{lunch}) = \frac{99}{200} = 0.495 = 49.5\%$

b) $P(\text{breakfast} \cup \text{lunch}) = P(\text{breakfast}) + P(\text{lunch})$
 $= \frac{28}{200} + \frac{99}{200}$
 $= 0.635$
 $= 63.5\%$

↳ Keterangan:
 Breakfast dan lunch syahrnya saling eksklusif (mutually exclusive) that ada dim-satu Variable maka rumusnya
 $P(A \text{ or } B) = P(A) + P(B) - P(A \cap B)$
 ↳ ini unitnya variabel

c) $P(\text{Pria} \cup \text{dinner}) = P(\text{Pria}) + P(\text{dinner}) - P(\text{Pria} \cap \text{dinner})$
 $= \frac{100}{200} + \frac{50}{200} - \frac{29}{200}$
 $= 0.645$
 $= 64.5\%$

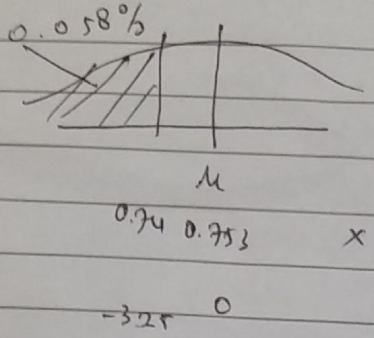
d) $P(\text{Pria} \cap \text{dinner}) = \frac{29}{200} = 0.145$
 $= 14.5\%$

e) $P(\text{breakfast} | \text{perempuan}) = \frac{P(\text{breakfast} \cap \text{perempuan})}{P(\text{perempuan})}$

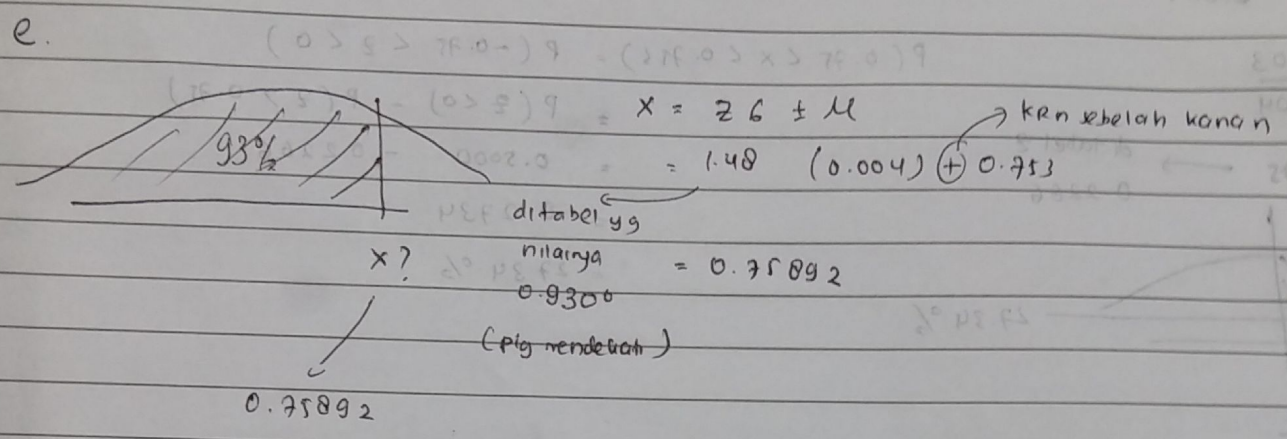
$= \frac{10/200}{100/200} = 0.1$



d. $P(X < 88) = P(X < 0.74) = 0.00058$ (lihat jawaban b)



$= 0.058\%$



2a) $\mu = \frac{\sum_{i=1}^n x_i}{N} = 1.7132$

; Range = $1.870 - 1.512 = 0.318$

Median = nilai tengah setelah diurutkan = $\frac{n+1}{2} = \frac{21}{2} = 10.5$ Data ke 10 adalah 1.696

Standar deviasi = $6 \cdot \sqrt{\frac{\sum_{i=1}^n (x_i - \mu)^2}{N}} = 0.083$

b) $Q_1 = \frac{(n+1)}{4} = \frac{21}{4} = 5.25 \rightarrow$ Data ke 5 adalah 1.652

$Q_3 = \frac{3(n+1)}{4} = \frac{3(21)}{4} = 15.75 \rightarrow$ data ke 16 adalah 1.788

Interquartile Range = $Q_3 - Q_1 = 1.788 - 1.652 = 0.136$

Distribusi:

$\mu \pm 1\sigma = 1.7132 \pm 0.083$ [1.6302, 1.7962] $\frac{13}{20} \times 100\% = 65\%$

$\mu \pm 2\sigma = 1.7132 \pm 0.1660$ [1.5472, 1.8792] $\frac{20}{20} \times 100\% = 100\%$

$\mu \pm 3\sigma = 100\%$ (karena yg 2.6 pun sudah 100%)

Distribusi data mendekati empirical Rule

5. Diketahui: $p = 52\%$

$n = 500$

$z = 1.96$ (95% two tails)

a. $p \pm z \sqrt{\frac{p(1-p)}{n}}$

$$0.52 \pm 1.96 \sqrt{\frac{0.52 \times 0.48}{500}}$$

$$0.52 \pm 0.04$$

$$0.48 \leq \pi \leq 0.56$$

tidak bisa krn 0.5 ada dlm interval

b. ~~Ya bisa krn 52% artinya lebih dari setengah pekeja~~

c. $p \pm z \sqrt{\frac{p(1-p)}{n}}$

$$0.52 \pm 1.96 \sqrt{\frac{0.52 \times 0.48}{5000}}$$

$$0.52 \pm 0.01$$

$$0.51 \leq \pi \leq 0.53$$

Bisa krn 0.5 tidak ada dlm interval

d. Penambahan jumlah sample mempengaruhi interval estimation, semakin besar sample semakin sempit intervalnya