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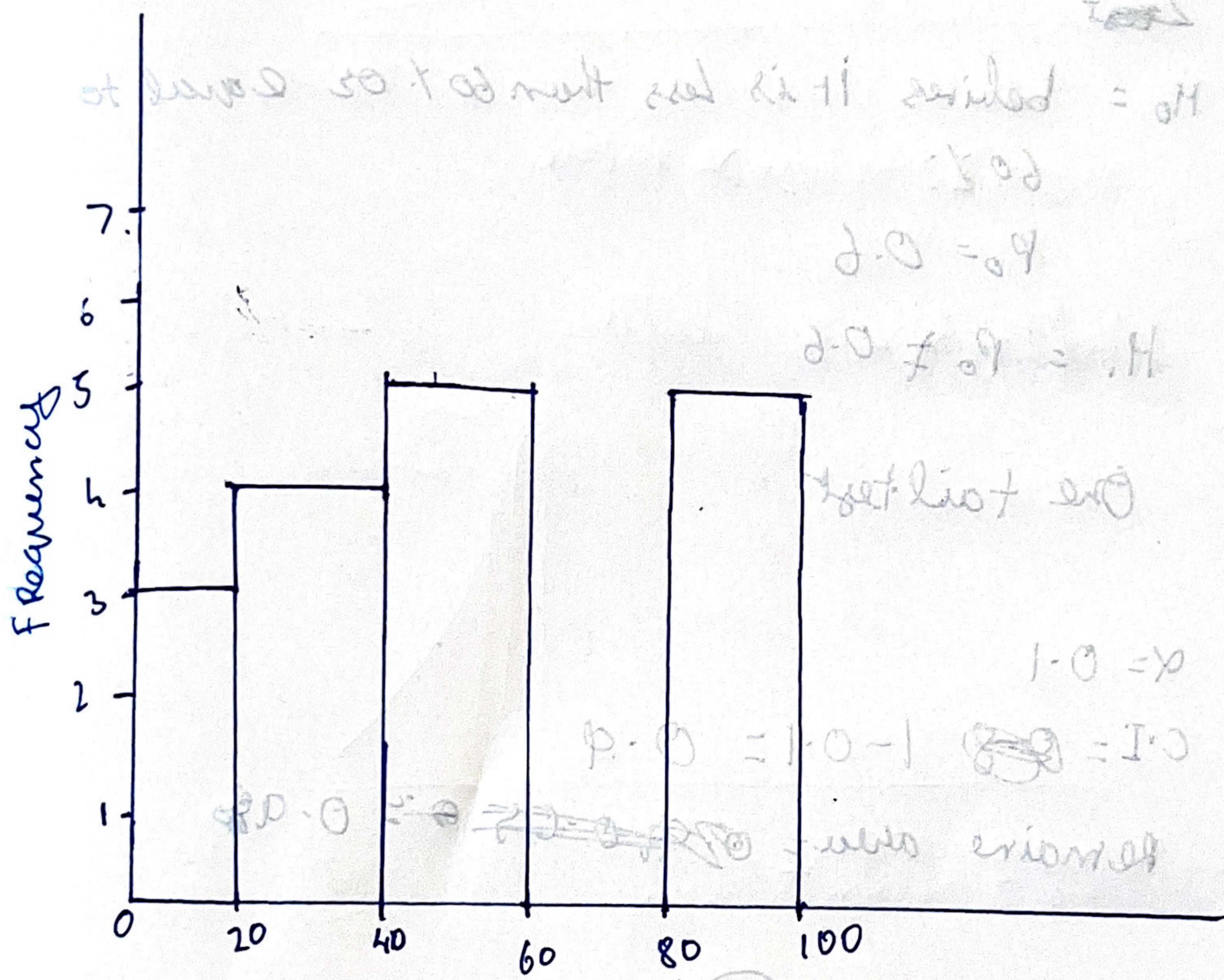
Q2 & 3 = 11

Data = [10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56, 57, 88, 90, 92, 94, 99]

Range = 89 - 10 = 79

bins = 5

bin size = $\frac{100}{5} = 20$



bin size

20
20
20
20

885.1

③

$$n = 250$$

$$x = 170$$

$$P_0 = 0.6$$

$$q_0 = 1 - P_0 = 1 - 0.6 = 0.4$$

$$\hat{p} = \frac{x}{n} = \frac{170}{250} = 0.68$$

$$\text{S.E.} = \frac{q_0}{\sqrt{n}} = 0.028 \text{ mid}$$

Z test

H_0 = believes it is less than 60% or equal to 60%.

$$P_0 = 0.6$$

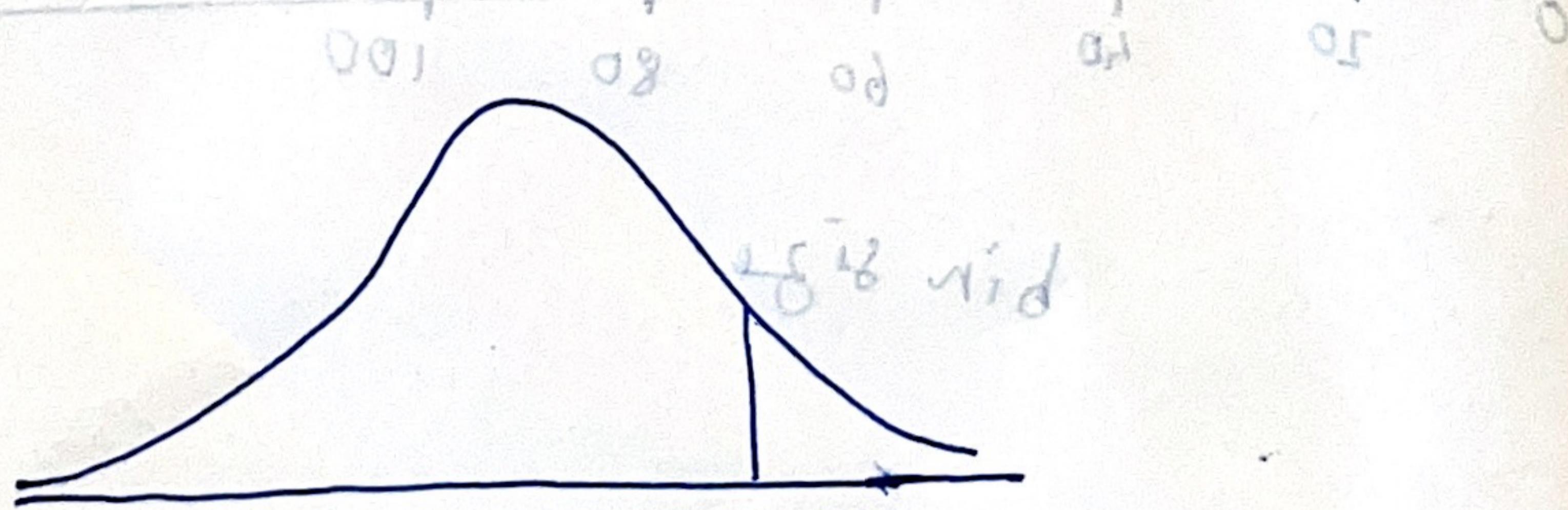
$$H_1 = P_0 \neq 0.6$$

One tail test

$$\alpha = 0.1$$

$$C.I = 1 - 0.1 = 0.9$$

$$\text{Remaining area} = 0.9 - 0.05 = 0.95$$



~~left tail~~

1.285

$$Z_{\text{test}} = \frac{\hat{P} - P_0}{\sqrt{\frac{P_0(1-P_0)}{n}}} \quad \text{which becomes simple}$$

$$\frac{0.68 - 0.6}{\sqrt{\frac{0.6 \times 0.4}{250}}} = \frac{0.08}{\sqrt{\frac{0.24}{250}}} = \frac{-0.08}{0.06409}$$

= -1.285

$$-1.285 < 1.285$$

hence null hypothesis is accepted.
Sales manager is wrong.

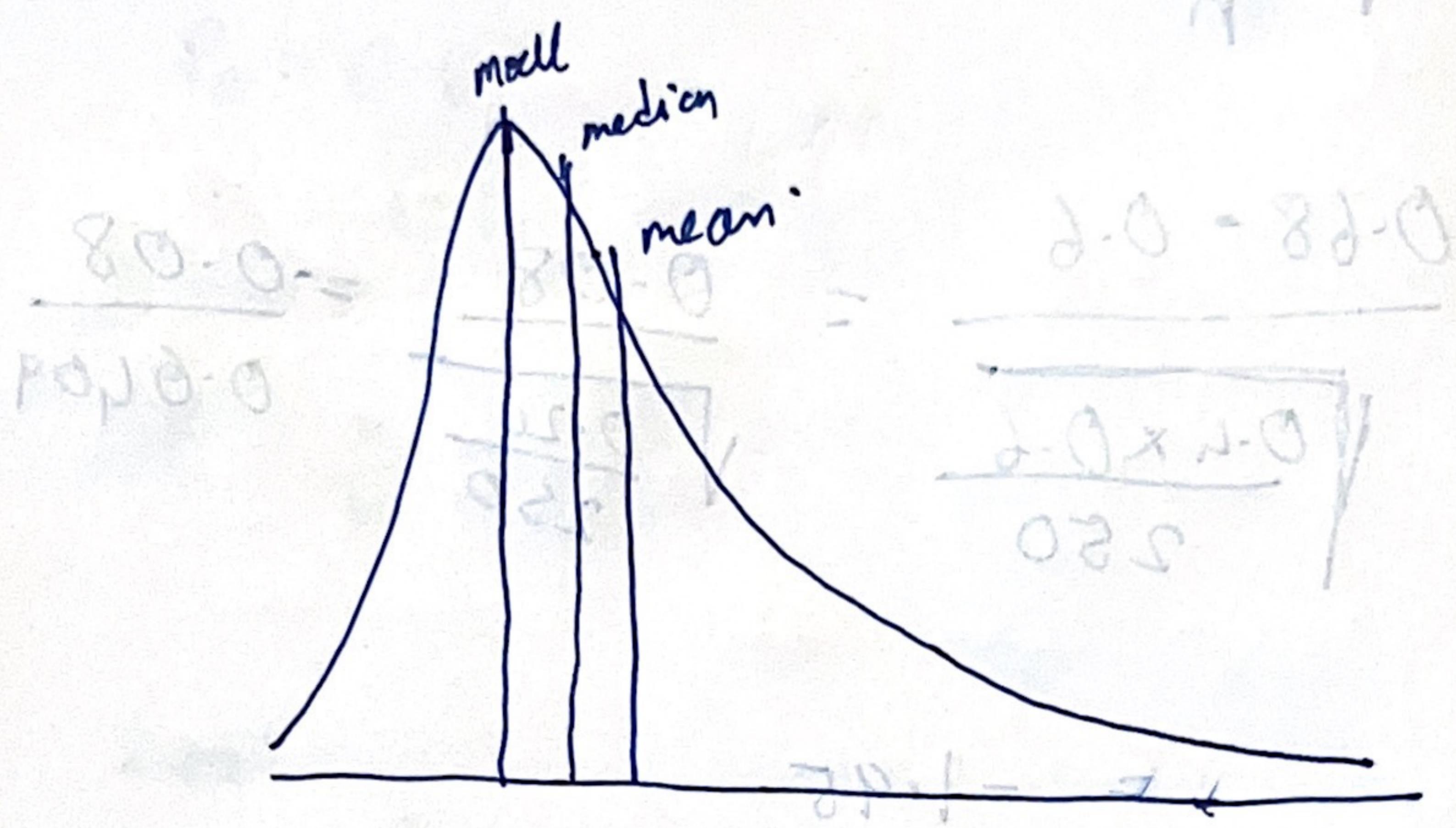
$$4) \quad \frac{99}{100} \times 21 = 0.99 \times 21 = 20.79$$

99th Percentile is 12

⑤

Right skewed data

$$\frac{0.9 - \hat{q}}{\hat{q} - 0.1} = 7.45$$



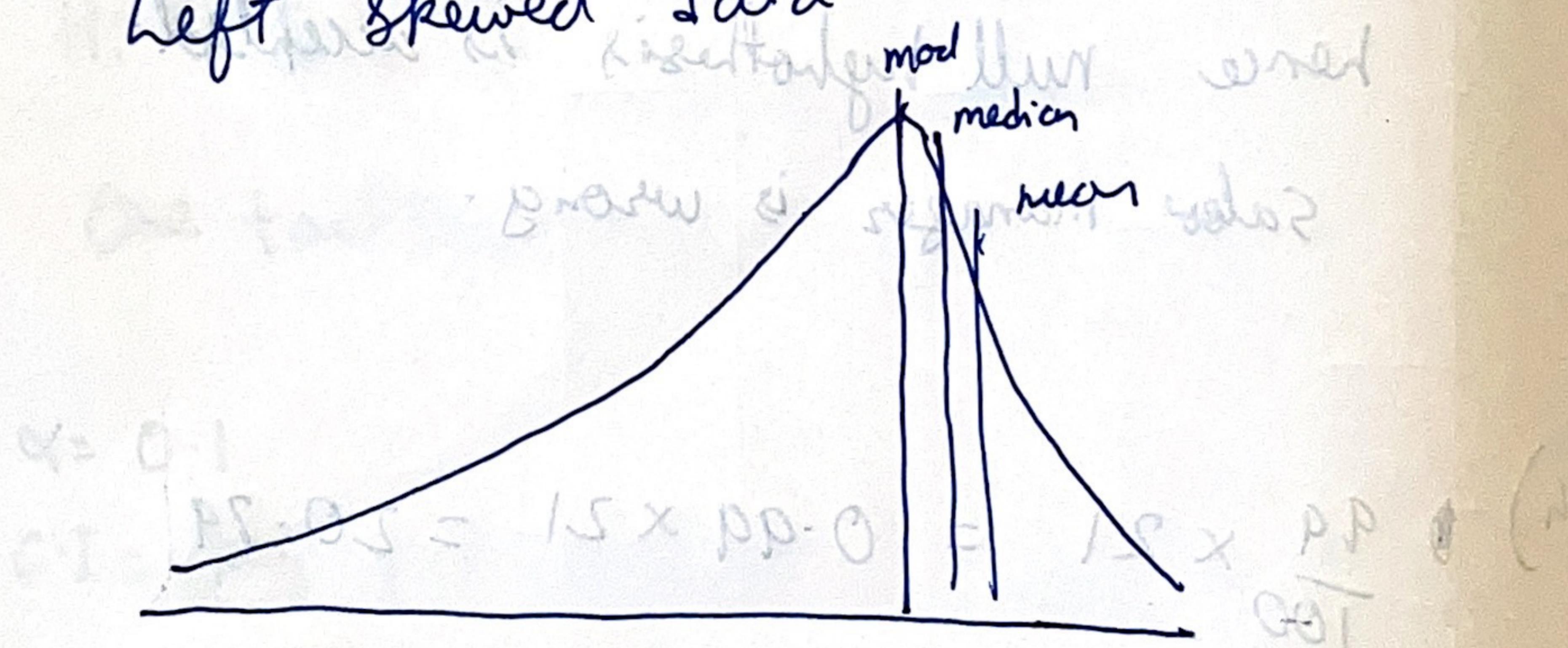
$$d.0 = 88.0$$

$$d.0 \times 0.0 = 0.0$$

mean > median > mode

$$88.1 > 84.1$$

left skewed data



mode > median > mean

②

$$C.I = 80\% \quad C-25 + 0.52 = \text{lowered subject}$$

$$\sigma = 100 \quad C-2 + 52 =$$

$$n = 25$$

$$\bar{x} = 520$$

$$C-2P_{12} = \text{lowered mean}$$

$$C-2N2 = \text{lowered subject}$$

~~z_{0.05}~~ =

$$\alpha = 1 - C.I$$

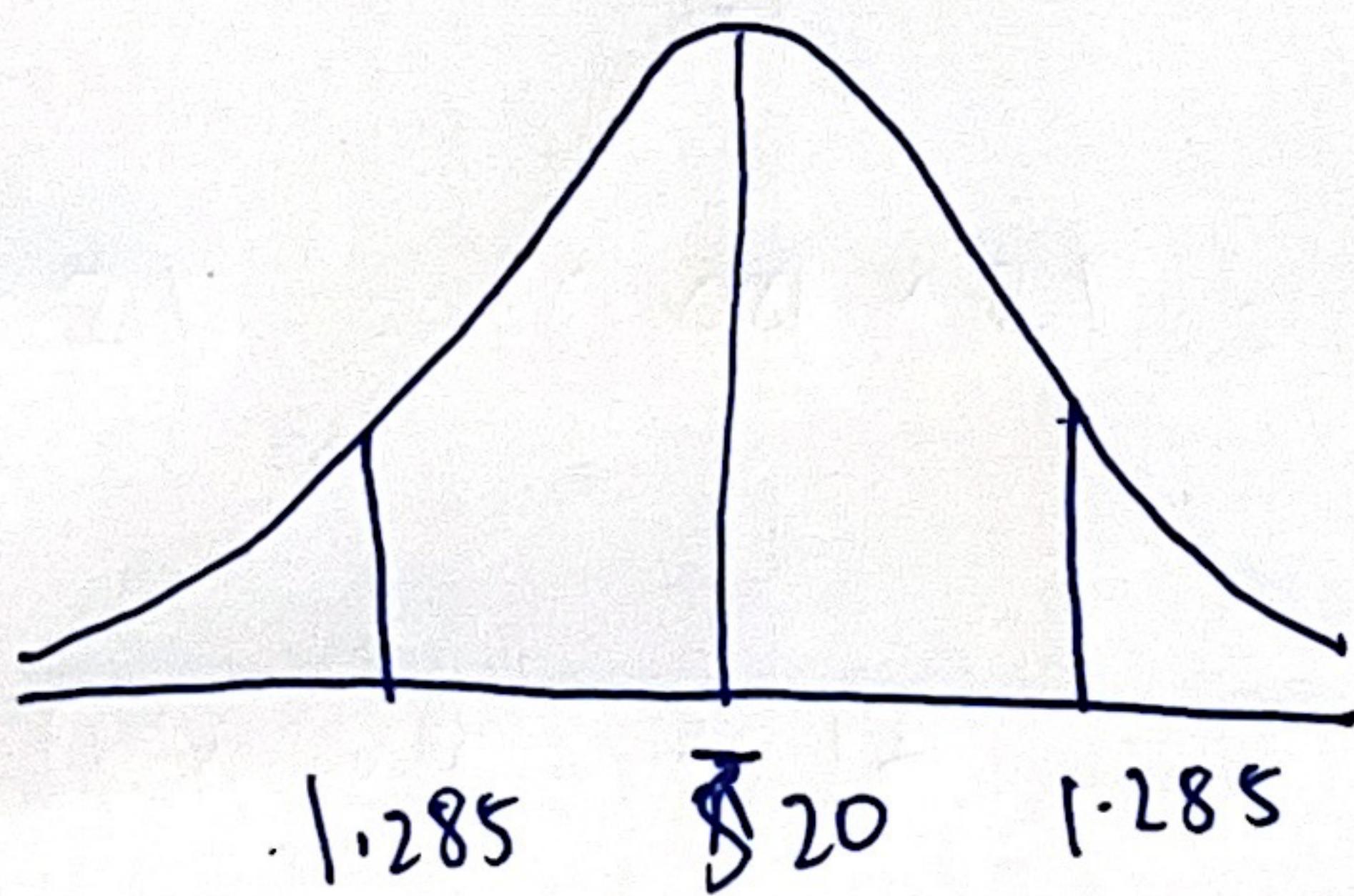
$$\alpha = 0.2$$

$$\frac{\alpha}{2} = 0.1$$

Remaining area

$$= 1 - 0.1 = 0.9$$

$$Z_{\frac{\alpha}{2}} = 1.285$$



$$\text{Lower bound} = \bar{x} - Z_{\frac{\alpha}{2}} \times \left(\frac{\sigma}{\sqrt{n}} \right)$$

$$520 - 1.285 \times \frac{100}{\sqrt{25}}$$

$$520 - 25.7$$

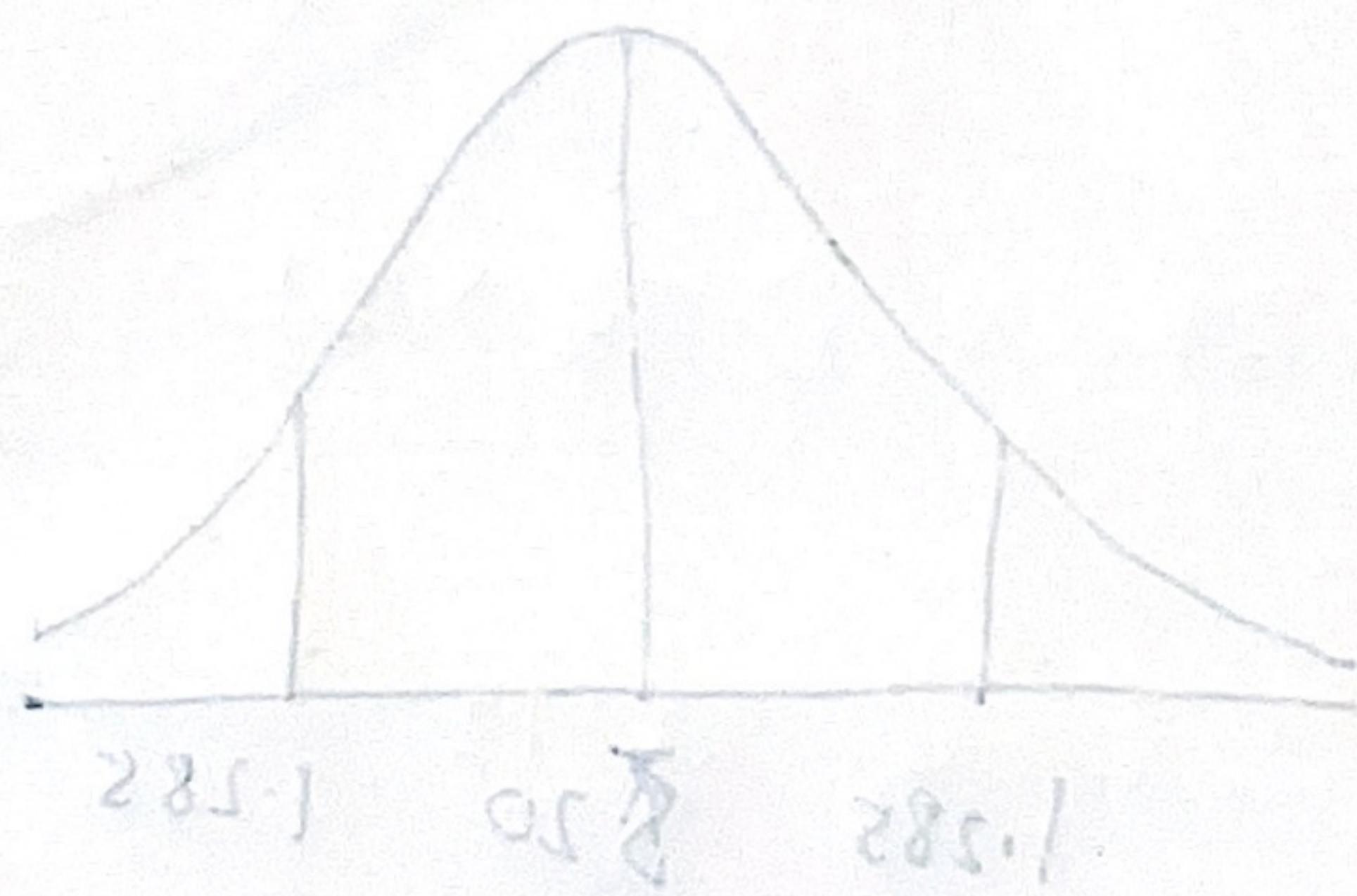
$$= 494.3$$

$$\text{higher bound} = 520 + 25.7$$

$$= 545.7$$

$$\text{Lower bound} = 494.3$$

$$\text{higher band} = 545.7$$



$$\left(\frac{\sigma}{\pi}\right) \times \frac{1}{2} - \bar{x} = \text{lower bound}$$

$$\frac{1}{2} + 285.1 - 0.5 = 285.1$$

$$f_{\bar{x}}(x) = 0.02$$

ENPN =