Q.2 $\sigma = 100$, $n = 25$, $\bar{x} = 520$.

$\Rightarrow \bar{x} \pm Z_{\alpha/2} \cdot \dfrac{\sigma}{\sqrt{n}}$ where $\alpha = 0.20$
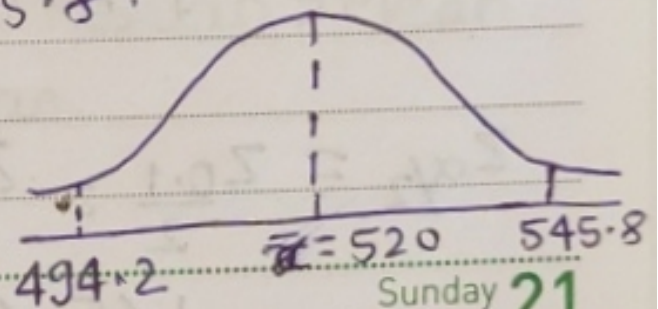
Now,

$Z_{\frac{0.20}{2}} = \cancel{0.53398}$
$= 1.29$.

~~Lower fencing~~
$\Rightarrow$ ~~520 - ... × 100~~

$\Rightarrow$ Lower fence :- $520 - \dfrac{1.29 \times \cancel{100}}{\cancel{100}} \quad \dfrac{}{\sqrt{25}\,5}$

$= 494.2$

$\Rightarrow$ Higher fence :- 545.8.

494.2 .... $\bar{x} = 520$ 545.8

Q.3 . $n = 250$, $x = 170$, $\alpha = 0.1$

(a) H_0 = city ABC owns vehicle 60% or less

H_1 = city ABC more vehicle.

$\hat{P} = \dfrac{x}{n} = \dfrac{170}{250} = 0.68$
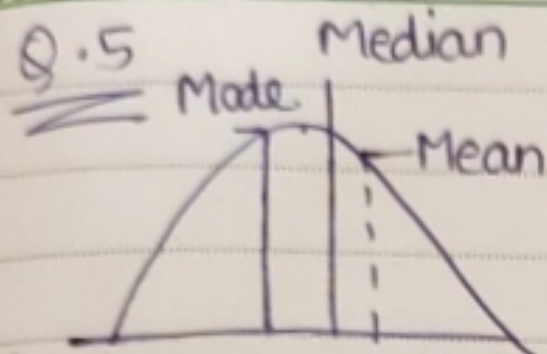
$q_0 = 1 - P_0 = 1 - 0.6 = 0.4$

$Z_{test} = \dfrac{\hat{P} - P_0}{\sqrt{\dfrac{P_0 q_0}{n}}} = \dfrac{0.68 - 0.6}{\sqrt{\dfrac{0.6 \times 0.4}{250}}} = 2.58.$

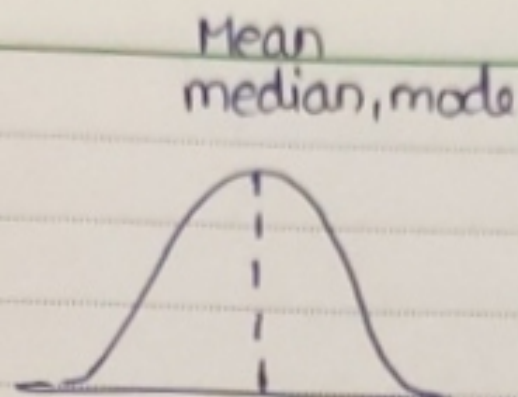$Z_{\alpha/2} = Z_{\frac{0.1}{2}} = Z_{0.05} = 1.65$

$1.65 < 2.58$; accept null hypothesis.

Q.5
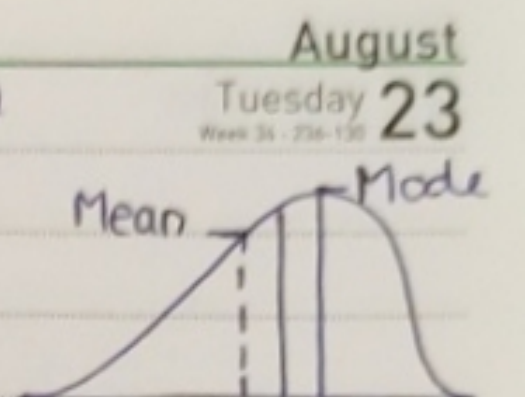

Right skewed   Normal Distribution   Median Left skewed.

⇒) Right skewed ⇒ Mean > Median > Mode.
- Rich people in India

⇒) Normal distribution : mean ≈ median ≈ mode
- Avg Age of student in class

⇒) Left skewed : mode > Median > Mean.
- Age of human.