|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | i. It’s systematic or  random error? | ii. Which part  would be affected?  (The real compared with samples) | iii. Power  increase or decrease? | iv. Which  kind of error? |
| a | It should be the **converage error** instead of **neithor systematic or random error**. | * diff: **Smaller** since the part of olders’ usage time is smaller than mean.. * sd: **Larger** since the part of olders’ usage time is different to the origin part.. | **Decrease**. | **Type II error.**  Since the uncover part of older users should be append. |
| b | The more data we get, the less error will have in this case, so it’s **random error**. | * n: **Larger** since the part of wrong data were removed in samples. | **Decrease** | **Type I error**  Since the wrong data should be removed. |
| c | This situation has only changed the way we interpret it, so it’s **neithor systematic or random error**. | * α: Change from 0.05 to 0.1.since the confidence level is changed from 0.95 to 0.9. | **No** **change**. | **Type I error.**  Since confidence level affect the type I error.. |
| d | It should be the **converage error** instead of **neithor systematic or random error**. | * diff: **Larger** since the part of not-olders’ usage time is bigger than the origin part. * sd: **Larger** since the part of usage time in weekend is different to the origin part. | **Decrease**. | **Type II error.**  Since the uncover part of weekend’s data should be append. |

Note: Since there are two different ways to explain the influence in part ii and the answer will be totally opposite,

1 is how this effect the observed-data will chagne since the reason occurs.

2 is how the real world data compared with the samples we observed.

I choose the way 2 to expalin the answer.