

T test assignment.

1. $\mu = 72$ beats/minute. (population mean)

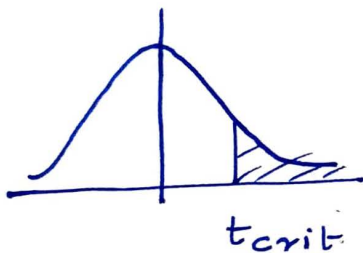
$$n = 25$$

after 6 months $\mu = 69$ b/m, $\sigma = 6.5$.

One sample t-test.

$$t_{\text{stat}} = \frac{\bar{x} - \mu}{\sigma / \sqrt{n}} = \frac{-72 + 69}{6.5 / \sqrt{25}} = -2.3$$

$t_{\text{critical}} \Rightarrow df = 24$, for 0.05 ~~or~~ significance
 $\Rightarrow 2.064$.



t_{stat} exceeds t_{crit} , hence
there's significant effect of
variation of fitness with workout.

2. $n = 30$

$\mu = 15$ months

$\bar{x} = 17$ months

$\sigma = 5.5$ months

$$t_{\text{stat}} = \frac{17 - 15}{5.5 / \sqrt{30}} = 2$$

\therefore from t-table for 2 sample test.

$df = 29$, 0.05 (2) $\Rightarrow 2.045$.

Hence accept the null.

if $df = 29$, 0.05 (1) $\Rightarrow 1.699$ (reject the null)

5. null hypothesis ; $\mu = 16$
alternate ; $\mu \neq 16$.

$n = 10$ months, Significance level $\alpha = 0.05$.

$$\sigma = 2.05$$

$$\bar{x} = 18$$

Since it isn't mentioned less/greater than 16.
we take two side test.

$$\therefore n = 9 ; \alpha = 0.05(2) \\ = 2.262 //$$

\therefore anything within $-2.262 \rightarrow 2.262$ should
accepted.

$$\therefore t = \frac{18 - 16}{\frac{2.05}{\sqrt{10}}} = \frac{2}{0.6482} = 3.085 //$$

\therefore There is significant evidence 3.085 lies
outside non-reject range. Hence less than
5% chance of firing him unjustified.

T-test.

$$3. \quad t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}$$
$$= \frac{30 - 26}{\sqrt{\frac{6.63^2}{15} + \frac{6.20^2}{15}}} = \frac{4}{2.304}$$

$$t = 1.706.$$

$$t_{crit_{0.05}(28)} = 2.048$$

Hence anxiety is there. Hypothesis passes

4. determine diff between relaxation group and control group.

$$\text{Standard error} = \frac{\sigma}{\sqrt{n}}$$

Total sample = 60.

$$\sigma = 2.56$$

~~pt = 4.~~

Controlled group mean = 30.

$$\therefore \frac{X - \mu}{\frac{\sigma}{\sqrt{n}}} = \frac{6.06}{\cancel{\frac{\sigma}{\sqrt{n}}}}$$

Relaxation group mean = 24.2.

$$SD_1 = 41.06$$

$$SD_2 = 38.44.$$

$$t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\frac{s_1^2 + s_2^2}{n}}}$$

$$= \frac{4 - 5.8}{14.5} = -0.124.$$

Since less than t_{critical} , 2.145. Hence hypothesis pass and relaxation group is different from control group.
