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C. NAME :- BSE 3B

QNO : 10.19

$\bar{x} = 38.$
$P. = 40$
$\sigma = 5.8$
$n = 64$
$\alpha = 0.4$

The Hypothosis are

$H_0 : P = 40$ months.
$H_1 : P < 40$ months.

Now, $z = \frac{\bar{x} - \mu}{\sigma/\sqrt{n}}$

$= \frac{38 - 40}{5.8/\sqrt{64}}$

$z = -2.76$

P- Value = $P(Zc - 2.76) = 0.029$
Dicision = reject.

QNO · 10.20

$\sigma = 0.24$

$\bar{x} = 5.23$

$n = 64$

$\mu = 5.5$

$\alpha = 0.05$

The Hypothesis are

$H_0 : \mu = 5.5$

$H_1 = \mu < 5.5$

Now,

$$\bar{z} = \frac{\bar{x} - \mu}{\sigma/\sqrt{n}}$$

$$= \frac{5.23 - 5.5}{0.24/64}$$

$$z = 9.0$$

P value $= P(z < -9.0) = 0$.

The while cheddar Popcorn, on average, weighted than 5.5.

QNO : 10:21

$\bar{x} = 788$

$\sigma = 40$

$\mu = 800$

$n = 30$.

The Hypothesis are

$H_0 : \mu = 800$

$H_1 : \mu = 800$

Now

$$z = \frac{\bar{x} - \mu}{\sigma/\sqrt{n}}$$

$$= \frac{788 - 800}{40\sqrt{30}}$$

$$= -1.64$$

P- value $= 2p(zc - 1.64) = 2(0.0505) = 0.1010$

Hence, the mean is not significantly different from 800 for $\alpha < 0.101$.

QNO : 10:22

$\bar{x} = 8.5$

$\mu = 8$.

$\sigma = 2.25$

$n = \sqrt{225}$

The Hypothesis are

$H_0 : \mu = 8$

$H_1 = \mu > 8.$

Now.

$$z = \frac{\bar{x} - \mu}{\sigma/\sqrt{n}}$$

$$= \frac{8.5 - 8}{2.25/\sqrt{2.25}}$$

$$= 3.33$$

P- value = $P(z > 3.33) = 0.009$

Decision reject H_0 and conclude that, cabs are TM, on average mediato more to 8 kms per week.

QNO: 10.23

$\bar{x} = 10.06$

$s = 0.246$

$\mu = 10$

$n = 10$

$\alpha = 0.01$

$df = 9.$

The Hypothesis are

$H_0 : \mu = 10$

$H_1 : \mu \neq 10$

Intial region $t < -3.25$ or $t < 3.25$

computation $t = \frac{10.06 - 10}{0.246/\sqrt{10}}$

$= 0.77$

Decission fail to reject H_0.

QNO: 10:24

$\bar{x} = 165.2$

$\sigma = 6.9$

$\mu = 162.5$

$n = 50$

The Hypothesis are

$H_0 : \mu = 162.5$ cm.

$H_1 : \mu \neq 162.5$ cm.

Now

$$z = \frac{\bar{x} - \mu}{\sigma/\sqrt{n}}$$

$$= \frac{165.2 - 162.5}{6.9/\sqrt{50}}$$

$z = 2.77$.

P-value $= 2P(Z > 2.77) = 2(0.0028)$

$= 0.0056$

Decision: reject H_0 and conclude that $\mu \neq 162.5$.

QNO: 10:25

$\bar{x} = 23.500$

$\delta = 3900$

$\mu = 20,000$

$n = \sqrt{100}$.

The Hypothesis are.

$H_0 : \mu = 20,000$ km

$H_1 = \mu > 20,000$ km.

Now

$$z = \frac{\bar{x} - \mu}{\delta/\sqrt{n}}$$

$$= \frac{23.500 - 20000}{3900/\sqrt{100}}$$

$$= 8.97$$

P. Value $= P(z > 8.97) \simeq 0$

reject H_0 and conclude that $\mu > 20000$ km

QNO: 10:26

$\bar{x} = 224$

$\delta = 24.5$

$n = 20$

$\mu = 220$

$\alpha = 0.01$

The Hypothesis are

$H_0 = \mu = 220$mg

$H_1 = \mu > 220$mg

df = 19.

critical region $t > 1.729$

calculation:-

$$t = \frac{224 - 220}{24.5/\sqrt{20}}$$

$$t = 4.38$$

Reject H_0 and claim $\mu > 220$ mg

QNO: 10:27

The Hypothesis are

$H_0 : \mu_1 = \mu_2$

$H_1 : \mu > \mu_2$

Solution:

$$sp = \sqrt{\frac{29(10.5)^2 + 29(10.2)^2}{58}}$$

$$sp = 10.35$$

$$P = \left[\frac{\bar{x} > 34.0}{10.35\sqrt{1/30 + 1/30}}\right] = P(z > 12.72) \approx 0$$

the conclusion is that during increase the mean RMP is older women.