Date:

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CLASS BSE - 3B
ENROLLMENT 02-131212-063

Q 10.19

$\bar{x} = 38$, $n = 64$
$\mu = 40$ $\alpha = 0.4$
$\sigma = 5.8$

The hypothesis are
H_0 : $\mu = 40$ month
H_1 : $\mu < 40$ month

Now,

$$z = \frac{38 - 40}{5.8/\sqrt{64}} = \boxed{-2.76}$$

P(Value) = P(z < -2.76) = 0.0029

Decision = Rejected

Q # 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 : $\mu < 5.5$

$$x = \frac{5.23 - 5.5}{0.24/\sqrt{64}} = \boxed{-9.0}$$

P-Value (z < -9.0) ≈ 0

The white cheddar popcorn on average, weight less than 5.5 oz

Q # 10.21

Date:

$n = 30$, $\bar{x} = 788$, $\alpha = 0.05$

$H_0 = \mu = 800$

$H_1: \mu \neq 800$

$$z = \frac{788 - 800}{40/\sqrt{30}} = \boxed{-1.64}$$

P-value $= 2P(z < -1.64)$

$2(0.0505) = 0.1010$

Hence the mean is not significantly different from 800 for $\alpha < 0.001$

Q # 10.22

H_0 $\mu = 8$, $\bar{x} = 8.5$

H_1 $\mu > 8$ $n = 225$ $\sigma = 2.25$

$$z = \frac{8.5 - 8}{2.25/\sqrt{225}}$$

$$\boxed{= 3.33}$$

P-value $= P(z > 3.33) = 0.0004$

Decision: Reject H_0 and conclude that mean men who are TM, on average, mediate more than 8 hrs per week.

Q # 10.23

Date:

$H_0 : \mu = 10$

$H_1 : \mu \neq 10$

$\alpha = 0.01$ and $df = 9$

Critical region : $t < -3.25$ or $t > 3.25$

Computation : $t = \frac{10.06 - 10}{0.246/\sqrt{10}} = 0.77$

Decision = Fail to reject H_0.

Q 10.24

$\sigma = 6.9$

$\mu = 162.5$

$n = 50$

$H_0 : \mu = 162.5$ cm

$H_1 \quad \mu \neq 162.5$ cm

$z = \frac{105.2 - 162.5}{6.9 / \sqrt{50}} = \boxed{2.77}$

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

Reject H_0 and conclude that $\mu \neq 162.5$

Q # 10.25

Date:

$n = 100$

$\bar{x} = 23500$

$\sigma = 3900$

The hypothesis are

$H_0 : \mu = 20,000$ Km

$H_1 : \mu > 20,000$ Km

Now, $Z = \frac{23500 - 20,000}{3900/\sqrt{100}} = 8.97$

P-Value $= P(Z > 8.97) \approx 0$

Decision reject H_0 and conclude that $\mu > 20000$ Km.

Q 10.26

$n = 20$, $\sigma = 24.5$, $\bar{x} = 224$

$t > 1.729$ (Critical region)

$\alpha = 0.01$, $df = 9$

The hypothesis are

$H_0 : \mu = 220$ mg

$H_1 : \mu > 220$ mg

Computation: $t = \frac{224 - 220}{24.5/\sqrt{20}} = \boxed{4.38}$

Decision: Reject H_0 and claim $\mu > 220$ mg.

Q # 10.27 Date:

$x_1 = 10.5\%$, $x_2 = (0.)\%$

$n-1 = 30-1 = 29$

The hypothesis are

$H_0 : \mu_1 \geq \mu_2$

$H_1 : \mu_1 > \mu_2$

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

$\therefore \left[(n-1)(s')^2 + (n-1)s_2^2\right]$

$= 10.35$

$$P\left[\quad 2 > \frac{34.0}{10.35\sqrt{\frac{1}{30} + \frac{1}{30}}} \right] = P(Z > 12.72) \approx 0$$

Hence the conclusion is that running increase the mean RMR in older woman -