Q1 (a) Proportion of vaccinated adults is claimed to be 0.53. For testing this, what is usually taken as null hypothesis?

Q1 (b) If you suspect the fraction to be too high, what is your alternative hypothesis?

Q1 (c) In a survey, the following is found. What will your test be?

Q1 (d) Suppose you desire a type-I error probability of 0.05 and power of 0.95 against the alternative that the fraction if 0.45. How many samples do you need? Use the normal approximation to the Gaussian distribution.

approximation to the Gaussian distribution.
$$d = P(T < c | b = 0.53) \approx F_{z} \left( \frac{C - 0.53m}{\sqrt{n \times 0.53 \times 0.47}} \right) = 0.05 \Rightarrow C = 0.53m - 1.645 \times 0.499 \sqrt{n}$$

$$e^{S} = P(T < c | b = 0.45) \approx F_{z} \left( \frac{C - 0.45 n}{\sqrt{n \times 0.45 \times 0.55}} \right) = 0.95 \Rightarrow C = 0.53n - 1.645 \times 0.499 \sqrt{n}$$

$$e^{S} = P(T < c | b = 0.45) \approx F_{z} \left( \frac{C - 0.45 n}{\sqrt{n \times 0.45 \times 0.55}} \right) = 0.95 \Rightarrow C = 0.53n - 1.6394 / n \Rightarrow n = 419.94$$

Q2 (a) Average age of students is claimed to be 24. For testing this, what is usually taken X11..., X ~ N(M, 52) as null hypothesis?

Q2 (b) If you suspect the above to be incorrect, what is your alternative hypothesis?

52 unkmoun Q2 (c) In a survey, the following is found. What will your test be?

$$n = 33$$
 $T = \sqrt{3}$ 
 $S^2 = 14^2$ 

Two-sided, t-test Reject Ho if IT-24 >C

Q2 (d) At a significance level of 0.05, what is your conclusion? 
$$T-24 \sim t_{n-1}$$

$$P(|T-24|>c) r=24) \approx 2F_{t_{n-1}} \left(\frac{-c}{s/\sqrt{n}}\right)$$

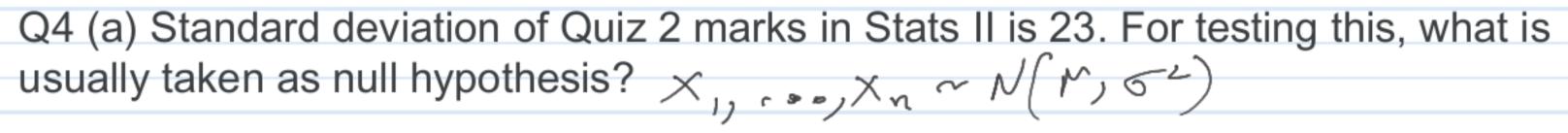
Q3 (b) If you suspect that Stats II has higher average, what is your alternative hypothesis?

Q3 (c) In a survey, the following is found. What will your test be?

Q3 (d) At a significance level of 0.05, what is your conclusion?

$$P(X-7>c|r=r_2)=1-F_2(\frac{c}{\sqrt{r_1+r_2}})=1-F_2(\frac{c/23}{\sqrt{r_1+r_2}})$$

Put c=X-7. If relie is below 0.05, reject 120 Sorrey



Q4 (b) If you suspect that it is actually higher, what is your alternative hypothesis?

Q4 (c) In a survey, the following is found. What will your test be?

$$m = 20$$
 $S^{2} = 14^{2}$ 

Q4 (d) At a significance level of 0.05, what is your conclusion?

$$P(S>c|\sigma=23)=1-F_2(\frac{(m-1)c^2}{23^2})$$

For 
$$C = S$$
, if above value is below o.o.s, reject Ho surely

Q5 (a) Standard deviation of Quiz 2 marks in Stats II and Math II are equal. For testing
this, what is usually taken as null hypothesis?
this, what is usually taken as null hypothesis?
State 1 = 52 moth
Q5 (b) If you suspect that Stats II's variance is higher, what is your alternative hypothesis?
HA: 012 > 022
Q5 (c) In a survey, the following is found. What will your test be?
n, = 20 N2 = 20 Two sample F- test
$m_1 = 20$ $m_2 = 20$ Two sample $F - test$ $S_x' = 14$ Pejet $H_0$ if $T = \frac{S_x'}{S_y'} > 1 + c_R$
Q5 (d) At a significance level of 0.05, what is your conclusion?
$P\left(\frac{S_{\chi}}{S_{\eta}} > 1 + e_{p}\right)\sigma_{1} = \sigma_{2} = 1 - F\left(1 + C_{p}\right)$ $F\left(\frac{S_{\chi}}{S_{\eta}} > 1 + e_{p}\right)\sigma_{1} = \sigma_{2} = 1$
5-62
Style Style To value (0.05) reject Ho.
Jones J
Show.

# medals	0	1	2	3	4	5	6	>6
fit	(1-p)/2	(1-p)/2	p/6	p/6	p/6	p/6	p/6	p/6
freq	4	5	1	1	0	0	1	0
expected	4.5	4.5	0-5	0-5	0.5	0.5	0-5	2.0

k=8

Q6 (a) Estimate p using ML method.

Q6 (b) Is this a good fit using the chi-square test? What is the P-value?

$$T = \frac{(4-4.5)^2 + \dots + (0-0.5)^2}{6.5} = \frac{28}{9}$$

$$P - V \cdot \text{lus}: P(T > c | fit) = 1 - F_{\chi^2}(\frac{28}{9}) = 0.874 - \text{gwite high}$$

$$a good fit:$$