

$$u_1 = q^2(1,4) + q^2(1,5) - q^2[2]^2(2,3) - q^2[2](3,2) + q^{-1}[2](4,1)$$

$$u_2 = q^2[3](1,4) - q^2(1,5) - q^2[2][3](3,2) + q^{-1}[2](5,1)$$

$$\begin{cases} E_0 \cdot v_1 = a v_4 + b v_5 \\ E_0 \cdot v_4 = c v_8, \quad E_0 \cdot v_5 = d v_8 \end{cases}$$

$$\text{commutes with } F_1, F_2 \Rightarrow E_0 \cdot v_2 = \frac{a+b[3]}{[2]} v_6$$

$$E_0 \cdot v_3 = a v_7$$

Serre relations

$$a[2] = c+d$$

$$c[2] = a+b[3]$$

$$a c [3] = b d$$

$$\left. \begin{array}{l} \left\{ \begin{array}{l} \frac{a}{c} + \frac{c}{a} = -q^3 - q^{-3} (-q-q^{-1}) \\ \frac{a}{c} = -q^3, \quad -q^{-3} \\ (-q) \quad (-q^{-1}) \end{array} \right. \end{array} \right\} \Rightarrow \frac{a}{c} = -q^3, \quad -q^{-3}$$

$$\left. \begin{array}{l} a = -q^3 c \\ a = -q^{-1} \Rightarrow c = q^2, \quad d = -[3], \quad b = q \end{array} \right\}$$

$$E_0 \xrightarrow{\begin{matrix} q \rightarrow q^{-1} \\ \Downarrow \end{matrix}} E_0$$

jimbo
map
ev

$$E_0 \xrightarrow{q \rightarrow q^{-1}} F_0$$

$$F_0 \xrightarrow{q \rightarrow q^{-1}} E_0$$

$$K \longrightarrow K^{-1}$$

$$[E_0, F_0] = \frac{K_0 - K_0^{-1}}{q - q^{-1}}$$

$$\begin{cases} E \rightarrow E \\ F \rightarrow F \\ q \rightarrow q^{-1} \\ K \rightarrow K^{-1} \end{cases}$$

$$\begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 2q \\ 2q^{-1} & 1 \end{bmatrix}$$

$\downarrow q \rightarrow q^{-1}$

$$\begin{bmatrix} 1 & 2q^{-1} \\ 2q & 1 \end{bmatrix}$$

ev_{q^3}

$\text{ev}_{q^{-3}}$

$V(a) \otimes V(b) \rightarrow V(b) \otimes V(a)$

$z = a/b$

$E_6 \xrightarrow{q \rightarrow q^{-1}} E_6$

$$L_{w_1+w_2}^{(2)} \cong L_{2w_1+2w_2} \oplus L_{3w_1} \oplus L_{3w_2} \oplus 2L_{w_1+w_2} + L_{w_0}$$

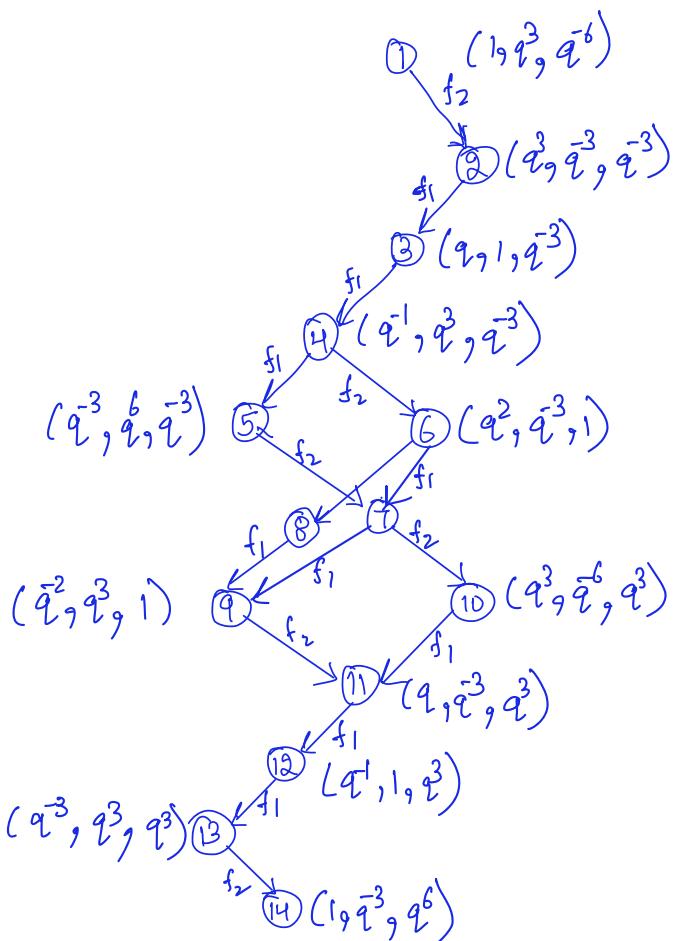
$V_1 \otimes V_1$

$\underbrace{(1,3)-q^1(3,1)}_{(1,2)-q^1(2,1)}$

✓

$$L_{w_1+w_2} \rightarrow u_1 = q^2(1,4) + q^2(1,5) - q^2[2]^2(2,3) - q^2[2](3,2) + q^{-1}[2](4,1)$$

$$u_2 = q^2[3](1,4) - q^2(1,5) - q^2[2][3](3,2) + q^{-1}[2](5,1)$$



$$\begin{array}{ll}
 \underline{R1} & E_1^4 E_2 - [4] E_1^3 E_2 E_1 + \frac{[4][3]}{\Sigma 2} E_1^2 E_2 E_1^2 - [4] E_1 E_2 E_1^3 + E_2 E_1^4 = 0 \\
 \underline{R2} & E_2^2 E_1 - [2] E_2 E_1 E_2 + E_1 E_2^2 = 0
 \end{array}
 \quad \begin{array}{ll}
 \underline{R3} & E \rightarrow F \\
 \underline{R4} & E \rightarrow F
 \end{array}$$

$$f_2 \cdot v_5 = v_7, \quad f_2 \cdot v_7 = v_{10}, \quad f_2 \cdot v_8 = 0$$

$$e_1 \cdot v_9 = \alpha v_7 + \beta v_8$$

$$e_1 \cdot v_7 = \gamma v_6, \quad e_1 \cdot v_8 = \delta v_6$$

$$f_1 \cdot v_6 = \alpha v_7 + \beta v_8$$

$$f_1 \cdot v_7 = \gamma v_9, \quad f_1 \cdot v_8 = \delta v_9$$

R3 on v_2 —

$n \rightarrow$ sample size

$$n = 401$$

2 -test

$$\left(\frac{\bar{x} - \mu}{\sigma} \right) \sqrt{n}$$

\bar{x} = sample mean

μ = population mean

σ = standard deviation

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Homework 13 Question 4 of 5 (1 point) | Question Attempt: 1 of 2 Ifrah Español Ask for help

Cable TV choices: A telecommunications company provided its cable TV subscribers with free access to a new sports channel for a period of one month. It then chose a sample of 401 television viewers and asked them whether they would be willing to pay an extra \$10 per month to continue to access the channel. A total of 24 of the 401 replied that they would be willing to pay. The marketing director of the company claims that the percentage of all of its subscribers who would continue subscribing differs from 8%. Can you conclude that the director's claim is true? Use the $\alpha=0.10$ level of significance with the P -value method and Excel.

Part 1 of 5

(a) State the appropriate null and alternate hypotheses.

$H_0: p = 0.08$ ✓
 $H_1: p \neq 0.08$

This hypothesis test is a two-tailed test.

Part 2 of 5

(b) Compute the test statistic. Do not round intermediate steps. Round the answer to two decimal places.

$z =$ Try one last time

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Ifrah Mohamed's screen

24 out of
401 8

$$\bar{x} = \frac{24}{401}$$

$$\mu = 0.08$$

$$\sigma = ??$$

$$\sigma = \sqrt{\mu(1-\mu)} = \sqrt{0.08(1-0.08)} = \sqrt{0.0592} = 0.0592$$

$$\left(\frac{\bar{x} - \mu}{\sigma} \right) \sqrt{n} = \frac{\frac{24}{401} - 0.08}{\sqrt{0.0592}} = \frac{-0.06}{0.0592} = -1.01$$

$$\sqrt{401} \approx \frac{(0.06-0.08)(20.02)}{0.2713} = -1.5$$

$$Z = -1.5$$

The screenshot shows a web-based assignment interface. At the top, there are browser tabs and a navigation bar with links like 'Gmail', 'YouTube', and 'Maps'. Below this is a green header bar with the text 'Homework 13' and 'Question 4 of 5 (1 point) | Question Attempt: 2 of 2'. On the right side of the header are buttons for 'Ifrah' and 'Español'. The main content area contains a text passage about a telecommunications company providing free access to a new sports channel for one month, followed by a sample of 415 viewers. It claims that less than 10% of subscribers would continue subscribing. A hypothesis testing form is shown, asking for null and alternative hypotheses. The null hypothesis H_0 is checked next to the symbol \leq . The alternative hypothesis H_1 is checked next to the symbol \neq . To the right of the hypotheses are buttons for $<$, $>$, $=$, \neq , and P . Below the hypotheses, a note says 'This hypothesis test is a (Choose one) test.' At the bottom of the page are buttons for 'Skip Part', 'Check', 'Save For Later', and 'Submit Assignment'. A copyright notice at the very bottom reads '© 2024 McGraw Hill LLC. All Rights Reserved. Terms of Use | Privacy Center | Accessibility'.

$$n = 415, \bar{x} = \frac{25}{415}, \mu = \frac{10}{100} = 0.1$$

$$z = \left(\frac{\bar{x} - \mu}{\sigma} \right) \sqrt{n} = \frac{\bar{x} - \mu}{\sqrt{\mu(1-\mu)}} \sqrt{n}$$

$$= \frac{\frac{25}{415} - 0.1}{\sqrt{0.1(0.9)}} \sqrt{415}$$

$$= \left(\frac{0.06024 - 0.1}{0.3} \right) 20.37155 = -2.69999$$

$$= \left(\frac{-0.03976}{0.3} \right) 20.37155 = -2.70$$

-2.70

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Homework 13 Question 5 of 5 (1 point) | Question Attempt: 1 of 2 Ifrah Español

Game consoles: A poll surveyed 341 video gamers, and 113 of them said that they prefer playing games on a console, rather than a computer or hand-held device. An executive at a game console manufacturing company claims that more than 29% of gamers prefer consoles. Does the poll provide convincing evidence that the claim is true? Use the $\alpha=0.01$ level of significance and the critical value method with the Cumulative Normal Distribution Table.

Part: 0 / 5

Part 1 of 5

State the appropriate null and alternate hypotheses.

$H_0:$

$H_1:$

This hypothesis test is a test.

Save For Later Submit Assignment

Ifrah Mohamed's screen

$$n = 341, \bar{x} = \frac{113}{341}, \mu = 0.29, \alpha = 0.01$$

$$z = \frac{\bar{x} - \mu}{\sqrt{\mu(1-\mu)}} = \frac{\frac{113}{341} - 0.29}{\sqrt{0.29(0.71)}}$$

$$= \frac{(0.3313783 - 0.29)}{0.45376205} 18.466$$

$$= \frac{(0.0413783)}{0.45376205} 18.466$$

$$= 1.06839$$

$$\boxed{1.68} < 2.33$$

do not reject