

| | A | B | C | D | E | F | G | H | I |
|----|---|--|---------------------|----------|--------------------|---|---|---|---|
| 1 | A dice is rolled 1024 times and face six is observed 160 times. Test at 7% of significance, | | | | | | | | |
| 2 | whether the dice is unbiased or not. | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | Solution :- Here , we have | | | | | | | | |
| 5 | | Sample size(n)= | | 1024 | | | | | |
| 6 | | No of Six faces (x)= | | 160 | | | | | |
| 7 | | Sample prop.(p)= | | 0.15625 | =D6/D5 | | | | |
| 8 | | Pop.Prop(P) = | | 0.166667 | | | | | |
| 9 | | | Q= | 0.833333 | | | | | |
| 10 | | Here, we set up Hypothesis as | | | | | | | |
| 11 | | | H0 : P = 1/6 i.e. | | Dice is unbiased | | | | |
| 12 | | | H1 : P ≠ 1/6 i.e. | | Dice is biased | | | | |
| 13 | | Under H ₀ | Test statistic | | | | | | |
| 14 | | | S.E.(x*)= | 0.011646 | =SQRT(D8*D9/D5) | | | | |
| 15 | | | Z _{cal} = | -0.89443 | =(D7-D8)/D14 | | | | |
| 16 | | | Z _{cal} = | 0.894427 | =ABS(D15) | | | | |
| 17 | | Level of sig.(α) = | | 0.07 | 0.05 | | | | |
| 18 | | | Z _{tab} = | 1.811911 | =NORMSINV(1-D17/2) | | | | |
| 19 | | Decision:- Since,Zcal < Ztab , we accept H ₀ and reject H ₁ with the | | | | | | | |
| 20 | | conclusion that Dice is Unbiased | | | | | | | |
| 21 | | | | | | | | | |
| 22 | | | Name: Parash Bista | | | | | | |
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