Hypothesis Testing about a Proportion P Solutions

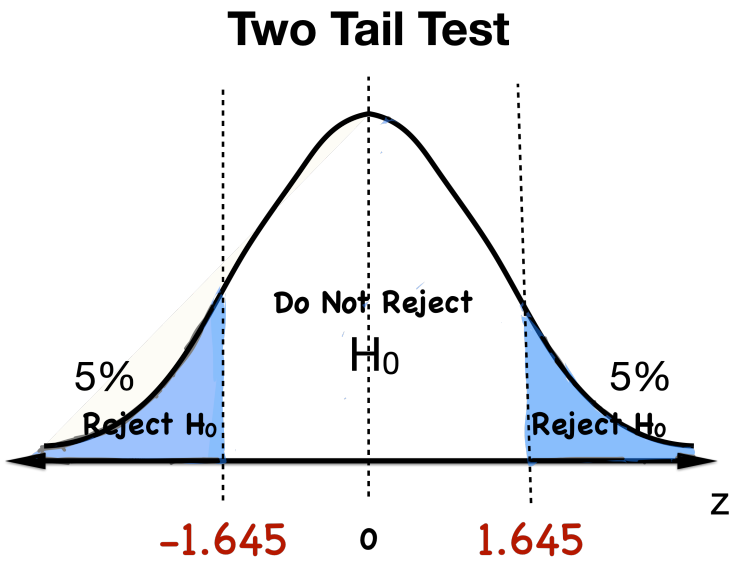
The proportion of college students who believe in Big Foot is not 25% as claimed by Professor Snodgrass. A sample of 500 college students reveal that 182 believe in Big Foot. Use the 10% level of significance to test this claim.

1. What is the claim?

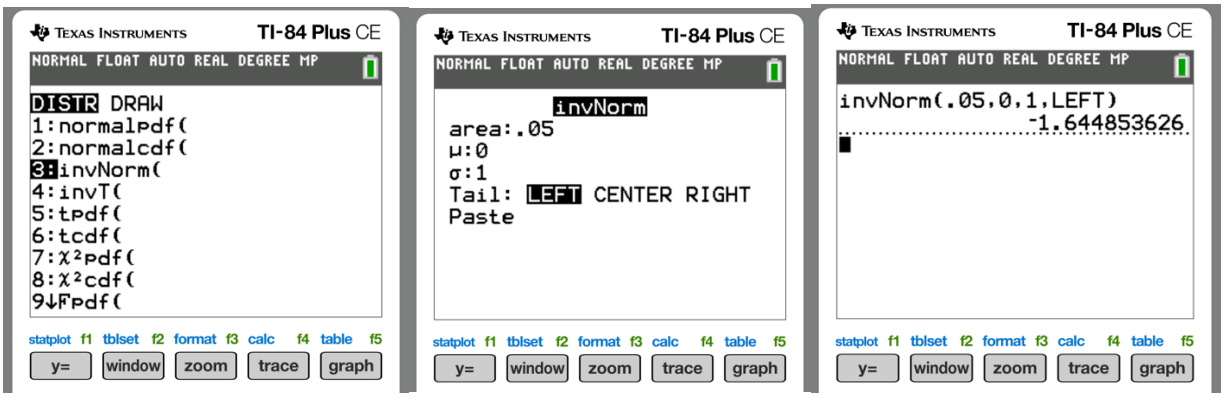
$$H_0: p = 0.25$$
$$H_1: p \neq 0.25 \text{ Claim}$$

2. What kind of test is this? Two tail test, right tail test, or left tail test? **Two Tail Test**

$\alpha = 10\%$

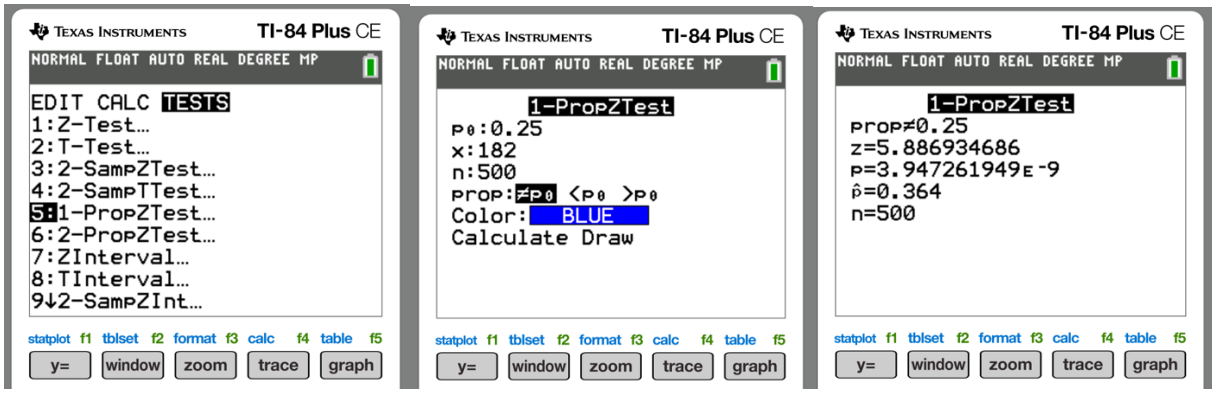


3. What are your critical value(s)? **Approximate to the nearest thousandths.** ± 1.645



4. What is your test statistic? **Approximate to the nearest thousandths.**

1PropZTest



$z \approx 5.887$

5. What is your conclusion?

Reject H_0

$H_0: p = 0.25$

$H_1: p \neq 0.25$ **Claim**

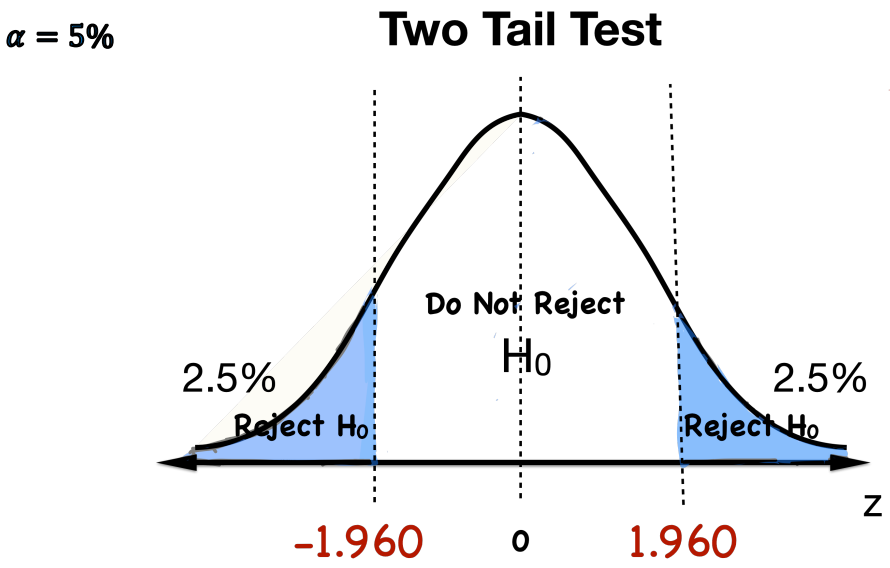
The sample supports the claim!

The proportion of college students who believe in UFO's is 32% as claimed by Professor Snodgrass. A sample of 150 college students reveal that 42 believe in UFO's. Use the 5% level of significance to test this claim.

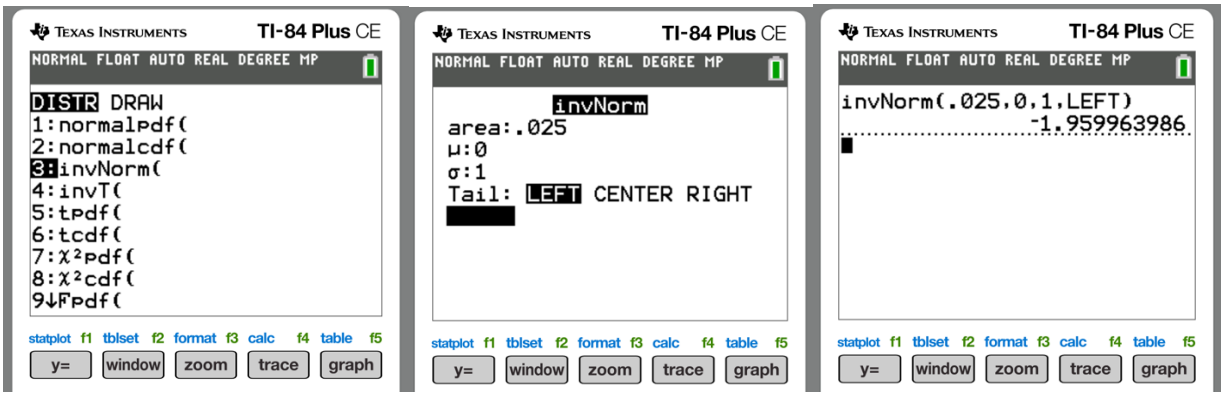
6. What is the claim?

$$H_0: p = 0.32 \text{ Claim}$$
$$H_1: p \neq 0.32$$

7. What kind of test is this? Two tail test, right tail test, or left tail test? **Two Tail Test**

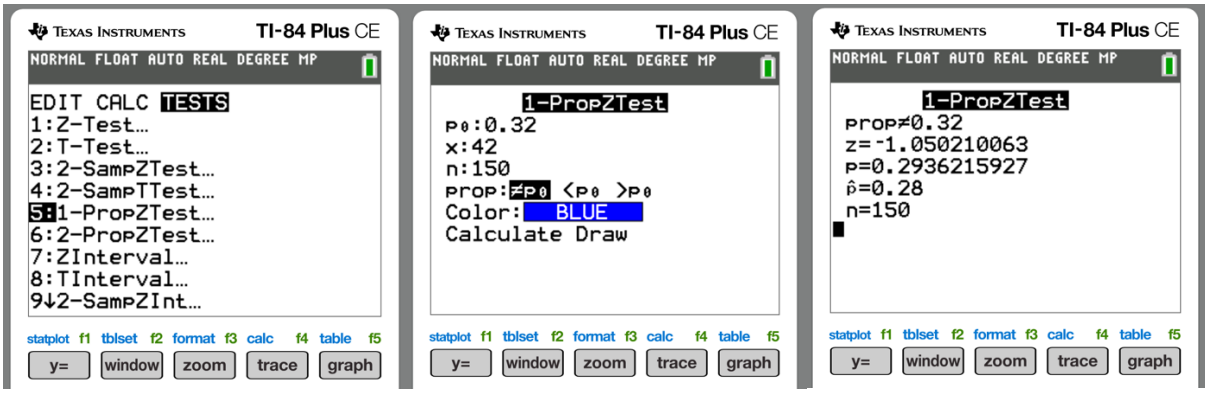


8. What are your critical value(s)? **Approximate to the nearest thousandths.** ± 1.960



9. What is your test statistic? **Approximate to the nearest thousandths.**

1PropZTest



$$z \approx -1.050$$

10. What is your conclusion?

Do Not Reject H_0

$H_0: p = 0.32$ **Claim**

$$H_1: p \neq 0.32$$

The sample supports the claim!

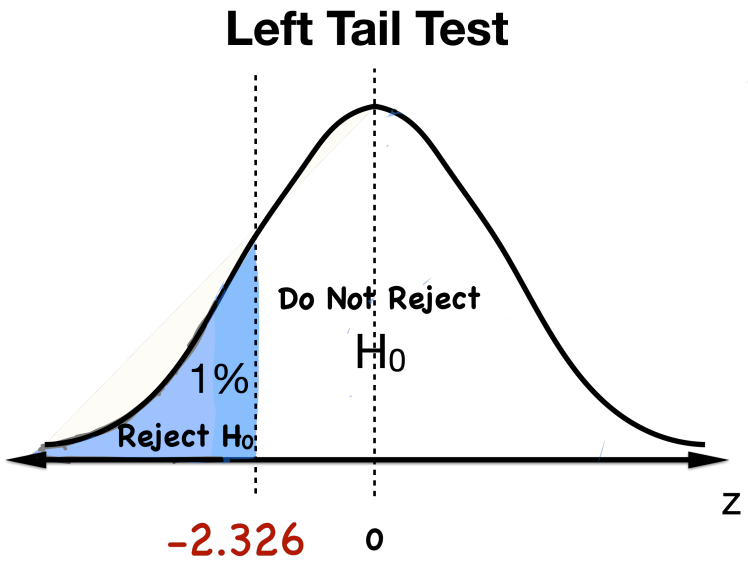
The proportion of college students who spend too much time on social media is at least 45% as claimed by Professor Snodgrass. A sample of 200 college students reveal that 82 spend too much time on social media. Use the 1% level of significance to test this claim.

11. What is the claim?

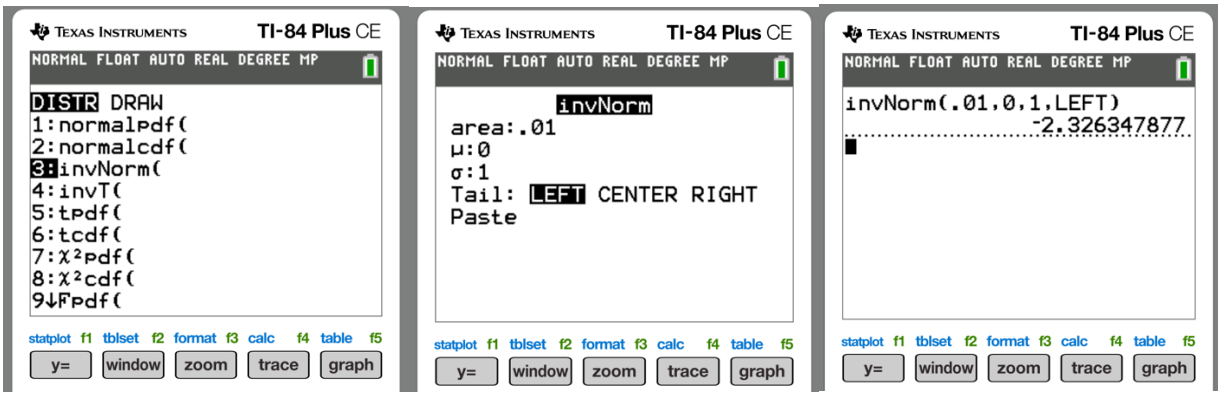
$$H_0: p \geq 0.45 \text{ Claim}$$
$$H_1: p < 0.45$$

12. What kind of test is this? Two tail test, right tail test, or left tail test? **Left Tail**

$\alpha = 1\%$

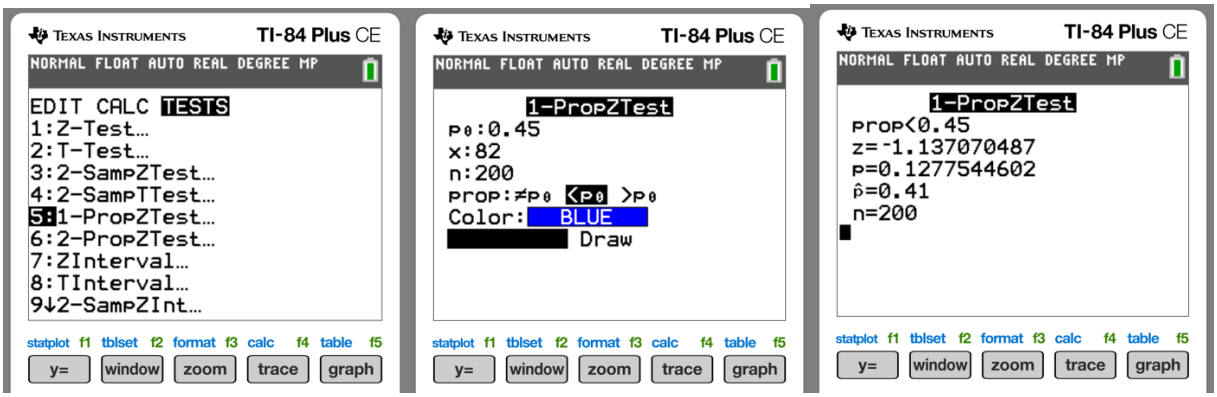


13. What are your critical value(s)? **Approximate to the nearest thousandths.** -2.326



14. What is your test statistic? **Approximate to the nearest thousandths.**

1PropZTest



$$z \approx -1.137$$

15. What is your conclusion?

The Sample Supports The Claim

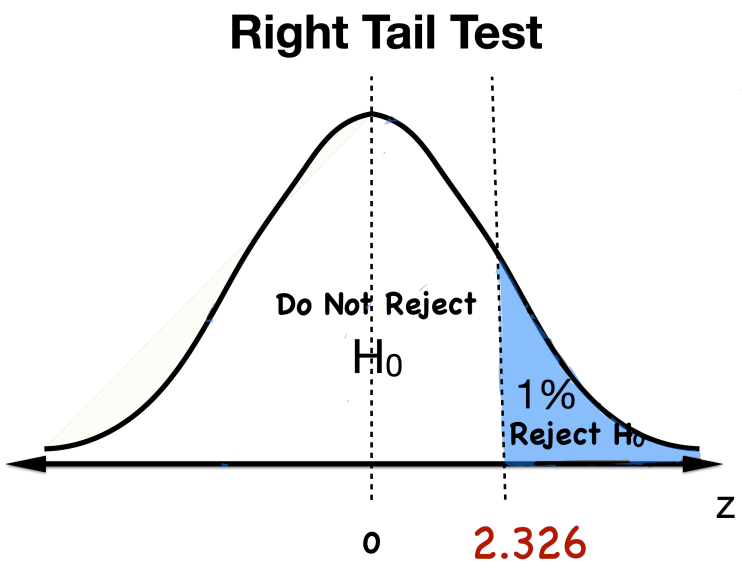
The proportion of college students who spend too much time on social media is no more than 38% as claimed by Professor Snodgrass. A sample of 100 college students reveal that 36 spend too much time on social media. Use the 1% level of significance to test this claim.

16. What is the claim?

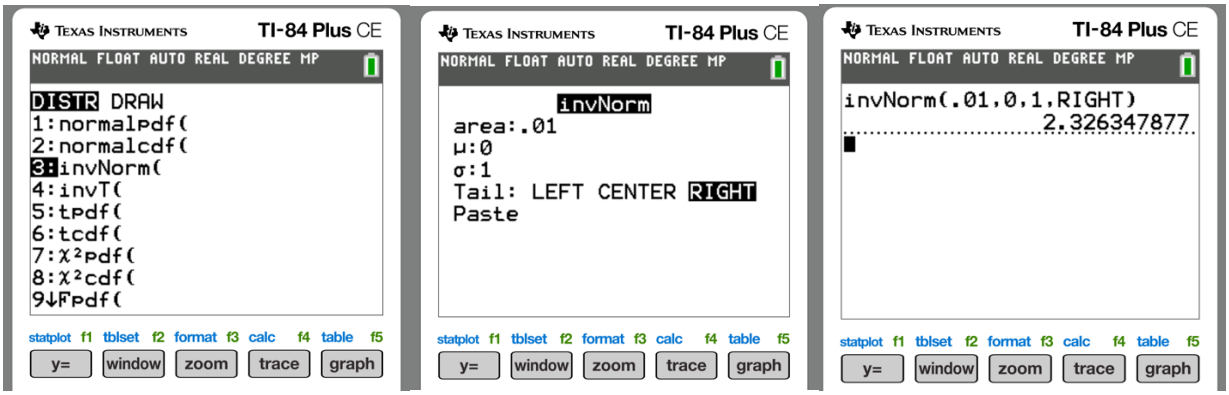
$$H_0: p \leq 0.38 \text{ Claim}$$
$$H_1: p > 0.38$$

17. What kind of test is this? Two tail test, right tail test, or left tail test? **Right Tail Test**

$\alpha = 1\%$

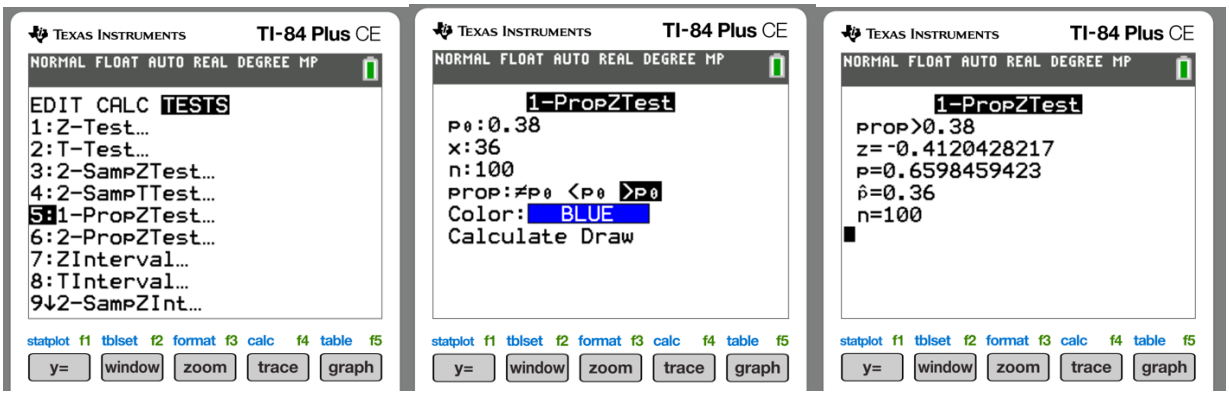


18. What are your critical value(s)? **Approximate to the nearest thousandths.** 2.326



19. What is your test statistic? **Approximate to the nearest thousandths.**

1PropZTest



$$z \approx -0.412$$

20. What is your conclusion?

Do Not Reject H_0

$H_0: p \leq 0.38$ Claim

$H_1: p > 0.38$

The Sample Supports The Claim

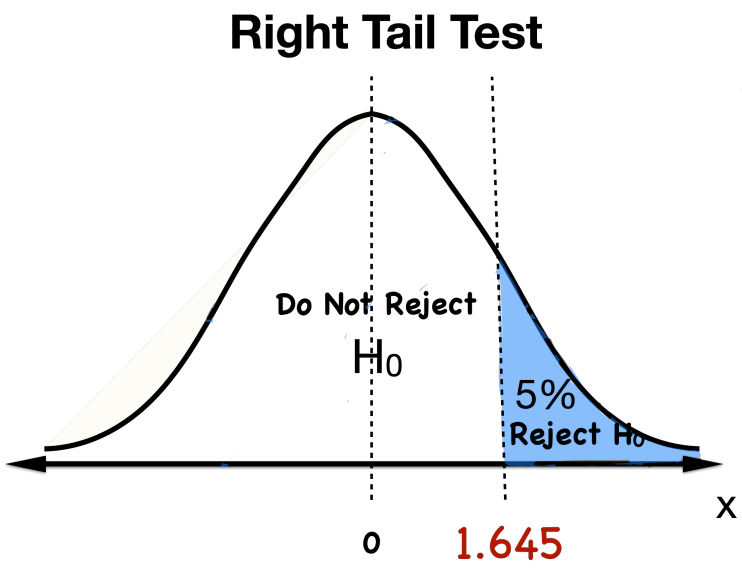
The proportion of California residents who live past 75 years of age is more than 65% as claimed by the Governor of California. A sample of 200 California residents reveal that 145 live past 75 years. Use the 5% level of significance to test the claim.

21. What is the claim?

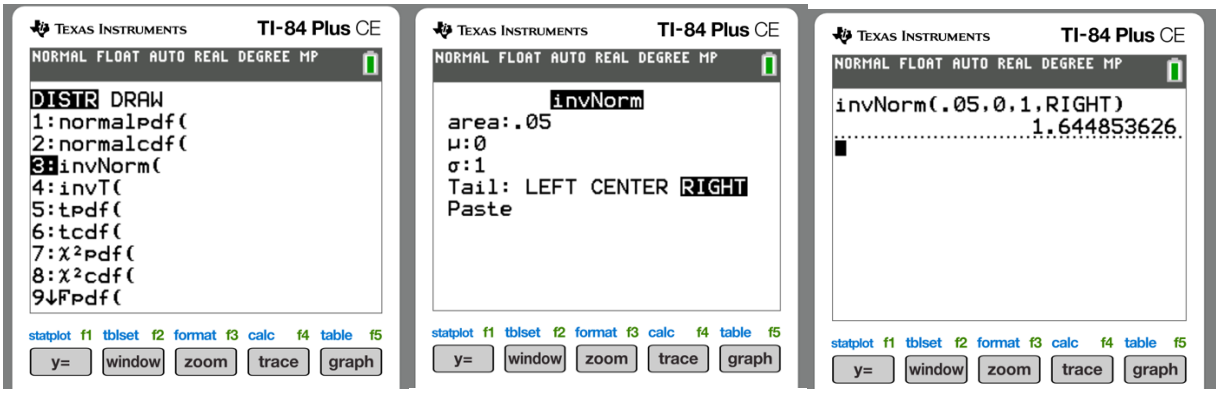
$$H_0: p \leq 0.65$$
$$H_1: p > 0.65 \text{ Claim}$$

22. What kind of test is this? Two tail test, right tail test, or left tail test? **Right Tail Test**

$\alpha = 5\%$

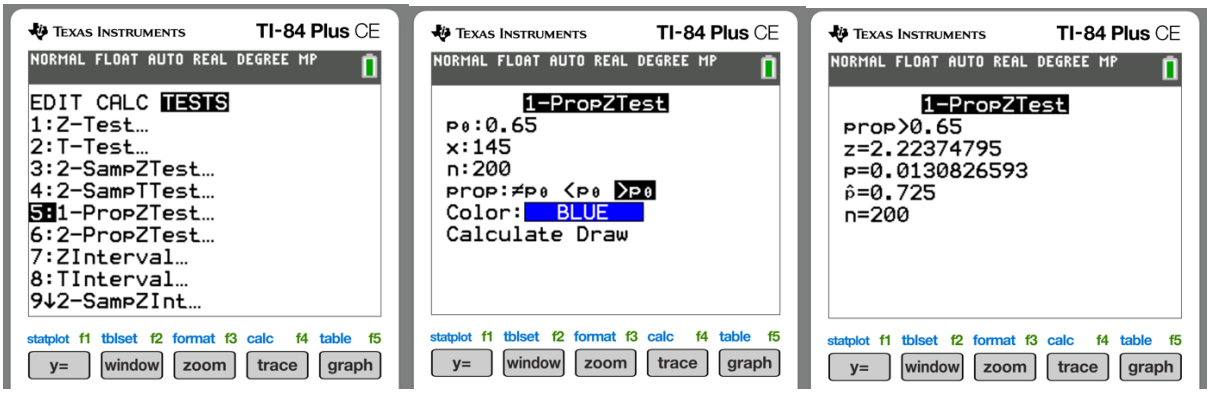


23. What are your critical value(s)? **Approximate to the nearest thousandths.** 1.645



24. What is your test statistic? **Approximate to the nearest thousandths.**

1PropZTest



$z \approx 2.224$

25. What is your conclusion?

Reject H_0

$H_0: p \leq 0.65$

$H_1: p > 0.65$ **Claim**

The Sample Supports The Claim