

Honors Statistics

7.3 Review

Conduct a 6 step hypothesis test using the indicated method.

- 1) An airline claims that the no-show rate for passengers is less than 5%. In a sample of 420 randomly selected reservations, 19 were no-shows. At $\alpha = 0.01$, test the airline's claim using the traditional method.
- 2) The engineering school at a major university claims that 20% of its graduates are women. In a graduating class of 210 students, 58 were women. Does this suggest that the school is believable? At $\alpha = 0.05$, test the claim using the traditional method.
- 3) A telephone company claims that 20% of its customers have two telephone lines. The company selects a random sample of 500 customers and finds that 88 have two telephone lines. If $\alpha = 0.05$, test the company's claim using the p-value method.
- 4) A recent study claimed that more than 15% of junior high students are overweight. In a sample of 160 students, 18 were found to be overweight. At $\alpha = 0.10$, test the claim using the p-value method.

Sketch then determine whether to reject or fail to reject the null hypothesis.

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| 5. | Right tailed test; $z = 1.93$
$z_{cv} = 2.33$ | 6. | Two-tailed test; $z = 2.57$
$z_{cv} = 1.96$ |
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Sketch and find the p-value. Then determine whether to reject or fail to reject the null hypothesis.

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| 7. | Left tailed test; $z = -1.89$
$\alpha = 0.02$ | 8. | Two-tailed test; $z = 3.27$
$\alpha = 0.01$ |
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Correction: #4 should say "less than"

Answers

- 1) $z_{cv} = -2.326$; $z = -1.448$; fail to reject null
- 2) $z_{cv} = \pm 1.96$; $z = 2.76$; reject null
- 3) Pvalue = 0.180; fail to reject null
- 4) Pvalue = .0921; reject null
- 5) fail to reject null; z is not in the critical region
- 6) reject null; z is in the critical region
- 7) .0294; fail to reject null
- 8) .00108; reject null