Hypothesis Testing: z-Test Statistics · 1

A cereal maker says its boxes hold a mean of 500 grams. To test H0: μ = 500 against Ha: μ < 500, a random sample of 36 has a sample mean of 494 grams. The population standard deviation is σ = 15 grams. Test at α = 0.01. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 2

A claim says the proportion of seeds who sprout is p = 0.5. To test H0: p = 0.5 against Ha: p ≠ 0.5, a random sample of 100 seeds finds that 60 sprout. Test at α = 0.05. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 3

A claim says the proportion of students who bike to school is p = 0.5. To test H0: p = 0.5 against Ha: p < 0.5, a random sample of 400 students finds that 172 bike to school. Find the z test statistic.

Hypothesis Testing: z-Test Statistics · 4

A two-tailed z-test at α = 0.01 gives z = -1.77. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 5

A politician says 60% of voters support her plan. A researcher wants to know whether the true value is different. Which hypotheses should be tested? (A) H0: p = 0.6, Ha: p ≠ 0.6 (B) H0: p ≠ 0.6, Ha: p = 0.6 (C) H0: p = 0.6, Ha: p > 0.6 (D) H0: p = 0.6, Ha: p < 0.6

Hypothesis Testing: z-Test Statistics · 6

Find the critical value z* for a left-tailed z-test at α = 0.01.

Hypothesis Testing: z-Test Statistics · 7

A delivery service says its mean delivery time is 30 minutes. To test H0: μ = 30 against Ha: μ > 30, a random sample of 16 has a sample mean of 31.6 minutes. The population standard deviation is σ = 4 minutes. Find the z test statistic.

Hypothesis Testing: z-Test Statistics · 8

A battery maker says its batteries last a mean of 40 hours. To test H0: μ = 40 against Ha: μ < 40, a random sample of 16 has a sample mean of 38.6 hours. The population standard deviation is σ = 4 hours. Test at α = 0.01. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 2

ANSWER

reject

Hypothesis Testing: z-Test Statistics · 1

ANSWER

reject

Hypothesis Testing: z-Test Statistics · 4

ANSWER

fail to reject

Hypothesis Testing: z-Test Statistics · 3

ANSWER

-2.8

Hypothesis Testing: z-Test Statistics · 6

ANSWER

-2.326

Hypothesis Testing: z-Test Statistics · 5

ANSWER

A

Hypothesis Testing: z-Test Statistics · 8

ANSWER

fail to reject

Hypothesis Testing: z-Test Statistics · 7

ANSWER

1.6

Hypothesis Testing: z-Test Statistics · 9

A claim says the proportion of voters who support the plan is p = 0.2. To test H0: p = 0.2 against Ha: p < 0.2, a random sample of 100 voters finds that 12 support the plan. Test at α = 0.05. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 10

A claim says the proportion of students who bike to school is p = 0.9. To test H0: p = 0.9 against Ha: p > 0.9, a random sample of 900 students finds that 828 bike to school. Find the z test statistic.

Hypothesis Testing: z-Test Statistics · 11

A left-tailed z-test at α = 0.05 gives z = -1.56. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 12

A bakery says its loaves weigh a mean of 680 grams. A researcher suspects the true value is higher. Which hypotheses should be tested? (A) H0: μ > 680, Ha: μ = 680 (B) H0: μ = 680, Ha: μ < 680 (C) H0: μ = 680, Ha: μ > 680 (D) H0: μ = 680, Ha: μ ≠ 680

Hypothesis Testing: z-Test Statistics · 13

Find the critical value z* for a left-tailed z-test at α = 0.05.

Hypothesis Testing: z-Test Statistics · 14

A battery maker says its batteries last a mean of 40 hours. To test H0: μ = 40 against Ha: μ < 40, a random sample of 144 has a sample mean of 38.6 hours. The population standard deviation is σ = 6 hours. Find the z test statistic.

Hypothesis Testing: z-Test Statistics · 15

A bakery says its loaves weigh a mean of 680 grams. To test H0: μ = 680 against Ha: μ < 680, a random sample of 100 has a sample mean of 665 grams. The population standard deviation is σ = 50 grams. Test at α = 0.05. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 16

A claim says the proportion of adults who recycle is p = 0.5. To test H0: p = 0.5 against Ha: p > 0.5, a random sample of 100 adults finds that 54 recycle. Test at α = 0.01. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 10

ANSWER

2

Hypothesis Testing: z-Test Statistics · 9

ANSWER

reject

Hypothesis Testing: z-Test Statistics · 12

ANSWER

C

Hypothesis Testing: z-Test Statistics · 11

ANSWER

fail to reject

Hypothesis Testing: z-Test Statistics · 14

ANSWER

-2.8

Hypothesis Testing: z-Test Statistics · 13

ANSWER

-1.645

Hypothesis Testing: z-Test Statistics · 16

ANSWER

fail to reject

Hypothesis Testing: z-Test Statistics · 15

ANSWER

reject

Hypothesis Testing: z-Test Statistics · 17

A claim says the proportion of teens who read for fun every week is p = 0.5. To test H0: p = 0.5 against Ha: p ≠ 0.5, a random sample of 100 teens finds that 52 read for fun every week. Find the z test statistic.

Hypothesis Testing: z-Test Statistics · 18

A right-tailed z-test at α = 0.05 gives z = 2.11. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 19

A politician says 60% of voters support her plan. A researcher suspects the true value is higher. Which hypotheses should be tested? (A) H0: p > 0.6, Ha: p = 0.6 (B) H0: p = 0.6, Ha: p < 0.6 (C) H0: p = 0.6, Ha: p ≠ 0.6 (D) H0: p = 0.6, Ha: p > 0.6

Hypothesis Testing: z-Test Statistics · 20

A school says its students sleep a mean of 8 hours a night. To test H0: μ = 8 against Ha: μ > 8, a random sample of 36 has a sample mean of 9.1 hours. The population standard deviation is σ = 3 hours. Find the z test statistic.

Hypothesis Testing: z-Test Statistics · 21

A delivery service says its mean delivery time is 30 minutes. To test H0: μ = 30 against Ha: μ < 30, a random sample of 16 has a sample mean of 29.1 minutes. The population standard deviation is σ = 2 minutes. Test at α = 0.01. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 22

A claim says the proportion of customers who buy a drink is p = 0.2. To test H0: p = 0.2 against Ha: p ≠ 0.2, a random sample of 100 customers finds that 17 buy a drink. Test at α = 0.01. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 23

A claim says the proportion of teens who read for fun every week is p = 0.8. To test H0: p = 0.8 against Ha: p ≠ 0.8, a random sample of 100 teens finds that 88 read for fun every week. Find the z test statistic.

Hypothesis Testing: z-Test Statistics · 24

A right-tailed z-test at α = 0.1 gives z = 1.94. Should you reject H0 or fail to reject H0? (Answer reject or fail to reject.)

Hypothesis Testing: z-Test Statistics · 18

ANSWER

reject

Hypothesis Testing: z-Test Statistics · 17

ANSWER

0.4

Hypothesis Testing: z-Test Statistics · 20

ANSWER

2.2

Hypothesis Testing: z-Test Statistics · 19

ANSWER

D

Hypothesis Testing: z-Test Statistics · 22

ANSWER

fail to reject

Hypothesis Testing: z-Test Statistics · 21

ANSWER

fail to reject

Hypothesis Testing: z-Test Statistics · 24

ANSWER

reject

Hypothesis Testing: z-Test Statistics · 23

ANSWER

2