

Review exam 3

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AO20S2161

1) This will be a 2 sample t test, using equal variance.
 $n=36$ for both, normal

$$H_0: \mu_1 = \mu_2$$

$$H_a: \mu_1 \neq \mu_2$$

$$\text{test stat: } t = \frac{(1.52 - 1.2)}{\sqrt{s_p^2 \left(\frac{1}{36} + \frac{1}{36} \right)}} \quad s_p^2 = \frac{(36-1).92 + (36-1).93}{36+36-2}$$

$$t = 1.47$$

$$df = 70$$

$P_{val} = .147$ fail to reject H_0 .

We didn't find any evidence that the means are different.

14) A

15) C

16) C

17) B

18) B

7) 32) 1 = .5

2 = -.63

3 = -.98

4 = .02

8) 33) 1 = .71 2 = -.23 3 = -.55 4 = .43

39) A

10) 40) A

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Review exam 3 cont

41) A

42) B

43) A

44) B

45) A

46) C

47) D

48) B

49) B

50) D

51) B

22 52) A

53) C

24 54) B

25 55) C

$$56a) 63.337 + (0.667 \times c)i$$

$$b) 83.333$$

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57) A

58) A

59) B

60) C

61) C

62) B

63) D

64) B

65) D

66) C

67) E

68) B

69) No. none of conditions satisfied

70) Yes, everything looks good

71) No, The conditions aren't adequately satisfied.

42 72) Yes, everything looks great.

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Review exam 3 cont.

43 73) No. Although normality plot looks good, the spread isn't

44) Yeah, everything looks good.

45 2) 2 sample t test, unequal variance
 $n \geq 30$. Are both ✓
 $\alpha = .05$

$$H_0: \mu_1 = \mu_2$$

$$H_A: \mu_1 > \mu_2$$

test stat using calc. $Z = 2.246$
 $df = 41$

$$p\text{-val} = .01504 \text{ reject } H_0$$

we found strong evidence that $\mu_1 > \mu_2$

46 3) 2 sample Z test
 normal ✓

$$\alpha = .05$$

$$H_0: \mu_1 = \mu_2, H_A: \mu_1 > \mu_2$$

test stat using calc $Z = 7.74$

$$p\text{-val} \approx 0 \text{ small, reject } H_0$$

we have extremely strong evidence that $\mu_1 > \mu_2$

47 4) 2 sample t test eq. variance.

normal ✓

$$\alpha = .05$$

$$H_0: \mu_1 = \mu_2, H_A: \mu_1 < \mu_2$$

$$t = -4.84$$

$$p\text{-val} \approx 0 \text{ small, reject } H_0$$

we found strong evidence that $\mu_1 < \mu_2$.

Final Exam 3 cont.

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- 5) 2 sample t test, uneq. variance.
 $n_1 \geq 30$

$$\alpha = .05$$

$H_0: \mu_1 = \mu_2, H_A: \mu_1 < \mu_2$
 test stat w/ calc.

$$t = -5.93 \quad df = 60$$

pval ≈ 0 small, reject H_0
 we found strong evidence that $\mu_1 < \mu_2$.

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- 6) 2 sample Z test

Assume normality ✓

$$\alpha = .05$$

$H_0: \mu_m = \mu_w, H_A: \mu_m > \mu_w$
 test stat w/ calc

$$z = 4.325$$

pval ≈ 0 small, reject H_0

we found strong evidence that $\mu_m > \mu_w$

(50)

- 7) 2 sample t test unequal var.

$n \geq 30$ for both ✓

$$\alpha = .05$$

$H_0: \mu_1 = \mu_2, H_A: \mu_1 \neq \mu_2$

test stat w/ calc:

$$t = -2.69 \quad df = 88$$

pval = .00845 small, reject H_0

we found strong evidence that $\mu_1 \neq \mu_2$