1. Assume that you plan to use a significance level of α = 0.05 to test the claim that p1 = p2, Use the given sample sizes and numbers of successes to find the P-value for the hypothesis test.  
  
n1 = 100 n2 = 140  
x1 = 41 x2 = 35  
  
  
  
a. 0.4211  
  
b. 0.0021  
  
c. 0.0512  
  
d. 0.0086

2. Construct the indicated confidence interval for the difference between the two population means. Assume that the two samples are independent simple random samples selected from normally distributed populations. Do not assume that the population standard deviations are equal.  
A paint manufacturer wished to compare the drying times of two different types of paint. Independent simple random samples of 11 cans of type A and 9 cans of type B were selected and applied to similar surfaces. The drying times, in hours, were recorded. The summary statistics are as follows.  
Type A Type B

X1 = 77.5hrs X2=63.6hrs

S1=4.5 hrs S2=5.1hrs

N1=11 N2=9

Construct a 98% confidence interval for μ1 - μ2 , the difference between the mean drying time for paint of type A and the mean drying time for paint of type B.   
  
  
  
a. 8.28 hrs < μ1 - μ2 < 19.52 hrs  
  
b. 8.35 hrs < μ1 - μ2 < 19.45 hrs  
  
c. 8.58 hrs < μ1 - μ2 < 19.22 hrs  
  
d. 8.42 hrs < μ1 - μ2 < 19.38 hrs

3. Construct a confidence interval for μd, the mean of the differences d for the population of paired data. Assume that the population of paired differences is normally distributed.  
  
A test of abstract reasoning is given to a random sample of students before and after they completed a formal logic course. The results are given below. Construct a 95% confidence interval for the mean difference between the before and after scores.  
Before 74 83 75 88 84 63 93 84 91 77  
After 73 77 70 77 74 67 95 83 84 75  
  
  
  
a. 0.2 < μd < 7.2  
  
b. 0.8 < μd < 6.6  
  
c. 1.0 < μd < 6.4  
  
d. 1.2 < μd < 5.7

4. The table shows the number satisfied in their work in a sample of working adults with a college education and in a sample of working adults without a college education. Assume that you plan to use a significance level of α = 0.05 to test the claim that P1>P2. Find the critical value(s) for this hypothesis test. Do the data provide sufficient evidence that a greater proportion of those with a college education are satisfied in their work?  
 College Edu. No College Edu.  
Number in sample 143 133  
Number satisfied in their work 71 66  
a. z = 1.645; no  
  
b. z = -1.645; yes  
  
c. z = 1.96; yes  
  
d. z = ± 1.96; no  
5. Find sd.  
  
The differences between two sets of dependent data are 0.24, 0.34, 0.3, 0.38, 0.4. Round to the nearest hundredth.  
  
  
  
a. 0.06  
  
b. 0.09  
  
c. 0.18  
  
d. 0.03  
  


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6. The two data sets are dependent. Find d to the nearest tenth.  
  
  
  
  
  
a. -2.1  
  
b. -1.6  
  
c. -1.0  
  
d. -9.6

7. Construct the indicated confidence interval for the difference between the two population means. Assume that the two samples are independent simple random samples selected from normally distributed populations. Do not assume that the population standard deviations are equal.  
  
A researcher was interested in comparing the salaries of female and male employees at a particular company. Independent simple random samples of 8 female employees and 15 male employees yielded the following weekly salaries (in dollars).

Female Male

495 722 518

760 562 904

556 880 1150

904 520 805

520 500 480

1005 1250 970

743 750 605

660 1640

Construct a 98% confidence interval for μ1 - μ2 the difference between the mean weekly salary of female employees and the mean weekly salary of male employees at the company.

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(Note: x1 = $705.38, x2 = $817.07, s1 = $183.86, s2=$330.15  
  
  
  
a. -$385 < μ1 - μ2 < $164  
  
b. -$383 < μ1 - μ2 < $159  
  
c. -$382 < μ1 - μ2 < $158  
  
d. -$431 < μ1 - μ2 < $208  
  


8. Find sd.  
  
Consider the set of differences between two dependent sets: 84, 85, 83, 63, 61, 100, 98. Round to the nearest tenth.  
  
  
  
a. 13.1  
  
b. 15.3  
  
c. 15.7  
  
d. 16.2

9. Find the value of the linear correlation coefficient r.  
  
x 57 53 59 61 53 56 60

Y 156 164 163 177 159 175 151  
  
  
a. -0.054  
  
b. 0.109  
  
c. 0.214  
  
d. -0.078

10. Is the data point, P, an outlier, an influential point, both, or neither?  
 ^  
The regression equation for a set of paired data is Y = -23.8 + 2x. The values of x run from 100 to 400. A new data point, P(194, 364.2) , is added to the set.  
  
  
  
a. Both  
  
b. Outlier  
  
c. Neither  
  
d. Influential point

11. Suppose you will perform a test to determine whether there is sufficient evidence to support a claim of a linear correlation between two variables. Find the critical values of r given the number of pairs of data n and the significance level α.   
  
n = 17, α = 0.05  
  
  
  
a. r = ±0.482  
  
b. r = ±0.606  
  
c. r = 0.482  
  
d. r = 0.497

12. Suppose you will perform a test to determine whether there is sufficient evidence to support a claim of a linear correlation between two variables. Find the critical values of r given the number of pairs of data n and the significance level α.   
  
n = 40, α = 0.01  
  
  
  
a. r = ±0.312  
  
b. r = 0.402  
  
c. r = 0.43  
  
d. r = ±0.402

13. Use the given data to find the best predicted value of the response variable.

Four pairs of data yield r = 0.942 and the regression equation y=3x. Also, y=12.75 What is the best predicted value of y for x=4.3?  
  
  
  
a. 12.75  
  
b. 12.9  
  
c. 0.942  
  
d. 2.826

14. Given the linear correlation coefficient r and the sample size n, determine the critical values of r and use your finding to state whether or not the given r represents a significant linear correlation. Use a significance level of 0.05.  
  
r = 0.523, n = 25  
  
  
  
a. Critical values: r = ±0.487, no significant linear correlation  
  
b. Critical values: r = ±0.396, significant linear correlation  
  
c. Critical values: r = ±0.396, no significant linear correlation  
  
d. Critical values: r = ±0.487, significant linear correlation

15. Find the critical value. Assume that the test is two-tailed and that n denotes the number of pairs of data.  
  
n =80, α = 0.05   
  
  
  
a. -0.221  
  
b. ±0.221  
  
c. ±0.219  
  
d. 0.221