4. Not happy with his previous results, an analyst takes a much larger random sample of customers from two websites and records their page views. Here are the data:

 Website A Website B

 *n*1 = 80 *n*2 = 95

 \_ \_

 *y*1 = 7.7 pages *y*2 = 7.3 pages

 s1 = 4.6 pagess2 = 4.3 pages

1. Find the estimated mean difference in page visits between the two websites.
2. Find the standard error of the estimated mean difference.
3. Calculate the *t*-statistic for the observed difference in mean page visits assuming that the true mean difference is 0.

13. For the data below,

Neighborhood 1 Neighborhood 2

 57 50

 60 43

 46 35

 62 53

 67 46

 56 55

1. Test the null hypothesis at $∝$ = 0.05 using the pooled *t*-test. (Show the *t*-test statistic, P-value, and conclusion).
2. Find a 95% confidence interval using the pooled degrees of freedom.

22. A city wants to know if a new advertising campaign to make citizens aware of the dangers of driving after drinking has been effective. They count the number of drivers who have been stopped with more alcohol in their systems than the law allows for each day of the week before and the week a month after the campaign states. Here are the results:

|  |  |  |
| --- | --- | --- |
| Day of the Week | Before | After |
| M | 5 | 2 |
| T | 4 | 0 |
| W | 2 | 2 |
| Th | 4 | 1 |
| F | 6 | 8 |
| S | 14 | 7 |
| Su | 6 | 7 |

1. Are the data paired? Explain.
2. Compute the mean difference.
3. Compute the standard deviation of the differences.
4. Compute the standard error of the mean difference.
5. Find the value of the *t*- statistic.
6. How many degrees of freedom does the *t*- statistic have?
7. Is the alternative one- or two- sided? Explain.
8. What is the P-value associated with the *t*- statistic?

(Assume that the other assumptions and conditions for inference are met.)

1. At $∝$ = 0.05, what do you conclude.

36. According to recent reports, home foreclosures were up 47% in March 2008 compared to the previous year. The data show home foreclosure rates (as % change from the previous year) for a sample of cities in two regions of the U.S., the Northeast and Southwest.

**Northeast:** 2.99, -2.36, 3.03, 1.01, 5.77, 9.95, -3.52,

7.16, -3.34, 4.75, 5.25, 6.21, 1.67, -2.45, -0.55, 3.45,

4.50, 1-87, -2.15, -0.75

**Southwest:** 10.15, 23.05, 18.95, 21.16, 17.45, 12.67,

13.75, 29.42, 11.45, 16.77, 12.67, 13.69, 25.81, 21.16

19.67, 11.88, 13.67, 18.00, 12.88

1. Write the null and alternative hypothesis.
2. Check the conditions.
3. Test the hypothesis and find the P-value.
4. Is there a significant difference in the mean home foreclosure rates in the two regions of the U.S.? Explain.