on word recall scores? If so, which color appears to be associated with higher word memory recall scores?

Red Background: $n = 35, \bar{x} = 15.89, s = 5.90$
Blue Background: $n = 36, \bar{x} = 12.31, s = 5.48$

7. Magnet Treatment of Pain People spend around $5 billion annually for the purchase of magnets used to treat a wide variety of pains. Researchers conducted a study to determine whether magnets are effective in treating back pain. Pain was measured using the visual analog scale, and the results given below are among the results obtained in the study (based on data from "Bipolar Permanent Magnets for the Treatment of Chronic Lower Back Pain: A Pilot Study," by Collacott, Zimmerman, White, and Rindone, *Journal of the American Medical Association,* Vol. 283, No. 10). Use a 0.05 significance level to test the claim that those treated with magnets have a greater mean reduction in pain than those given a sham treatment (similar to a placebo). Does it appear that magnets are effective in treating back pain? Is it valid to argue that magnets might appear to be effective if the sample sizes are larger?

Reduction in Pain Level After Magnet Treatment: $n = 20, \bar{x} = 0.49, s = 0.96$
Reduction in Pain Level After Sham Treatment: $n = 20, \bar{x} = 0.44, s = 1.4$

Table for Exercise 8

Men	Women
$n_1 = 186$	$n_2 = 210$
$\bar{x}_1 = 15{,}668.5$	$\bar{x}_2 = 16{,}215.0$
$s_1 = 8632.5$	$s_2 = 7301.2$

8. Do Men Talk Less Than Women? The accompanying table gives results from a study of the words spoken in a day by men and women, and the original data are in Data Set 17 in Appendix B (based on "Are Women Really More Talkative Than Men?" by Mehl, et al., *Science,* Vol. 317, No. 5834). Use a 0.01 significance level to test the claim that the mean number of words spoken in a day by men is less than that for women.

Table for Exercise 9

Women	Men
$n_1 = 11$	$n_2 = 59$
$\bar{x}_1 = 97.69°F$	$\bar{x}_2 = 97.45°F$
$s_1 = 0.89°F$	$s_2 = 0.66°F$

9. Do Women Have a Higher Mean Body Temperature? If we use the body temperatures from 8 A.M. on Day 2 as listed in Data Set 3 in Appendix B, we get the statistics given in the accompanying table. Use these data with a 0.01 significance level to test the claim that Women have a higher mean body temperature than Men.

10. Do Men and Women Have the Same Mean Body Temperature? Consider the sample of body temperatures (°F) listed in the last column of Data Set 3 in Appendix B. The summary statistics are given in the accompanying table. Use a 0.01 significance level to test the claim that men and women have different mean body temperatures.

Table for Exercise 10

Women	Men
$n_1 = 15$	$n_2 = 91$
$\bar{x}_1 = 98.38°F$	$\bar{x}_2 = 98.17°F$
$s_1 = 0.45°F$	$s_2 = 0.65°F$

11. Skull Measurements from Different Times Researchers measured skulls from different time periods in an attempt to determine whether interbreeding of cultures occurred. Results are given below (based on data from *Ancient Races of the Thebaid*, by Thomson and Randall-Maciver, Oxford University Press). Use a 0.01 significance level to test the claim that the mean maximal skull breadth in 4000 B.C. is less than the mean in A.D. 150.

4000 B.C. (Maximal Skull Breadth): $n = 30, \bar{x} = 131.37$ mm, $s = 5.13$ mm
A.D. 150 (Maximal Skull Breadth): $n = 30, \bar{x} = 136.17$ mm, $s = 5.35$ mm

12. Flight Arrival Delays Data Set 15 in Appendix B lists arrival delay times (min) for randomly selected flights from New York (JFK) to Los Angeles (LAX). Statistics for times are given below. Use a 0.05 significance level to test the claim that Flight 1 and Flight 3 have the same mean arrival delay time.

Flight 1 $n = 12, \bar{x} = -20.5$ min, $s = 12.38401$ min
Flight 3 $n = 12, \bar{x} = -15.08333$ min, $s = 15.62317$ min

13. Proctored and Nonproctored Tests In a study of proctored and nonproctored tests in an online Intermediate Algebra course, researchers obtained the data for test results given below (based on "Analysis of Proctored versus Non-proctored Tests in Online Algebra Courses,"