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7.55 $n > 26$. (The power is about 0.7999 when $n = 26$.)

7.57 -20.3163 to 0.3163; do not reject H_0.

7.59 Using df = 14, Table D gives $0.04 < P < 0.05$.

7.61 SAS and SPSS give $t = 2.279$, $P = 0.052$.

7.63 **(a)** Hypotheses should involve μ_1 and μ_2. **(b)** The samples are not independent. **(c)** We need P to be small (for example, less than 0.10) to reject H_0. **(d)** t should be negative to reject H_0 with this alternative.

7.65 **(a)** No (in fact, $P = 0.0771$). **(b)** Yes ($P = 0.0385$).

7.67 H_0: $\mu_{Brown} = \mu_{Blue}$ and H_a: $\mu_{Brown} > \mu_{Blue}$. $t = 2.59$. Software gives $P = 0.0058$. Table D gives $0.005 < P < 0.01$.

7.69 The nonresponse is $(3866 - 1839)/3866 = 0.5243$, or about 52.4%. What can we say about those who do (or do not) respond despite the efforts of the researchers?

7.71 **(a)** While the distributions do not look particularly Normal, they have no extreme outliers or skewness. **(b)** $\bar{x}_N = 0.5714$, $s_N = 0.7300$, $n_N = 14$; $\bar{x}_S = 2.1176$, $s_S = 1.2441$, $n_S = 17$. **(c)** H_0: $\mu_N = \mu_S$; H_a: $\mu_N < \mu_S$. **(d)** $t = -4.303$, so $P = 0.0001$ (df = 26.5) or $P < 0.0005$ (df = 13). **(e)** -2.2842 to -0.8082 (df = 26.5) or -2.3225 to -0.7699 (df = 13).

information about the magnitude of the difference.

7.81 This is a matched pairs design.

7.83 The next 10 employees who need screens might not be an independent group—perhaps they all come from the same department, for example.

7.85 **(a)** The north distribution (five-number summary 2.2, 10.2, 17.05, 39.1, 58.8 cm) is right-skewed, while the south distribution (2.6, 26.1, 37.70, 44.6, 52.9) is left-skewed. **(b)** The methods of this section seem to be appropriate. **(c)** H_0: $\mu_N = \mu_S$; H_a: $\mu_N \neq \mu_S$. **(d)** $t = -2.63$ with df = 55.7 ($P = 0.011$) or df = 29 ($P = 0.014$). **(e)** Either -19.09 to -2.57 or -19.26 to -2.40 cm.

7.87 **(a)** Either -0.90 to 6.90 units (df = 122.5) or -0.95 to 6.95 units (df = 54). **(b)** Random fluctuation may account for the difference in the two averages.

7.89 **(a)** H_0: $\mu_B = \mu_F$; H_a: $\mu_B > \mu_F$; $t = 1.654$, $P = 0.053$ (df = 37.6) or $P = 0.058$ (df = 18). **(b)** -0.2 to 2.0. **(c)** We need two independent SRSs from Normal populations.

7.91 $s_p = 0.9347$; $t = -3.636$, df = 40, $P = 0.0008$; -1.6337 to -0.4663. Both results are similar to those for Exercise 7.72.

7.93 $s_p = 15.96$; $t = -2.629$, df = 58, $P = 0.0110$; -19.08 to -2.58 cm. All results are nearly the same as in Exercise 7.85.

7.95 df = 55.725.

7.97 **(a)** df = 137.066. **(b)** $s_p = 5.332$ (slightly closer to s_2, from the larger sample). **(c)** With no assumption, $SE_1 =$ … $= 0.6136$. **(d)** $t =$ … the

(d) 0.3146 to 0.3854. (e) 35%; 31.5% to 38.5%.
(f) A possible concern: adults were surveyed before Christmas.

8.65 **(a)** $n_1 = 1063$, $\hat{p}_1 = 0.73$, $n_2 = 1064$, $\hat{p}_2 = 0.76$. (We can estimate $X_1 = 776$ and $X_2 = 809$.) **(b)** 0.03. **(c)** Yes; large, independent samples from two populations. **(d)** -0.0070 to 0.0670. **(e)** 3%; -0.7% to 6.7%. **(f)** A possible concern: adults were surveyed before Christmas.

8.67 No; we need independent samples from different populations.

8.69 **(a)** H_0 should refer to p_1 and p_2. **(b)** Only if $n_1 = n_2$. **(c)** Confidence intervals account for only sampling error.

8.71 **(a)** $\hat{p}_F = 0.8$, SE = 0.05164; $\hat{p}_M = 0.3939$, SE = 0.04253. **(b)** 0.2960 to 0.5161. **(c)** $z = 5.22$, $P \approx 0$.

8.73 **(a)** $n = 2342$, $x = 1639$. **(b)** $\hat{p} = 0.6998$. SE = 0.0095. **(c)** 0.6812 to 0.7184. **(d)** Yes.

8.75 We have large samples from two independent populations (different age groups). $\hat{p}_1 = 0.8161$, $\hat{p}_2 = 0.4281$. $SE_D = 0.0198$. The 95% confidence interval is 0.3492 to 0.4268.

8.79 **(a)** 1207. **(b)** 0.6483 to 0.6917. **(c)** About 64.8% to 69.2%

two independent