Practice Problem Solutions

1. $\overline{GPA} = \dfrac{31.1}{10} = 3.11$

2. $S = .415$

3. est. $= .415$

4. $est.\,\sigma_{\overline{X}} = \dfrac{.415}{\sqrt{10}} = .131$

5. $t = \dfrac{3.11 - 2.9}{.131} = 1.603, \qquad df = 10 - 1 = 9$

6. Critical value (one-tailed) = 1.833. The computed t is not significant. Fail to reject the null hypothesis.

7. The results reveal no significant difference between the GPA of re-entry students and the GPA of regular students.

8. $\overline{X} = 61.8$
   $\overline{Y} = 40.2$

9. $S_X = 11.764$
   $S_Y = 10.454$

10. $est. \sigma_{\bar{X}} = 3.721$
$est. \sigma_{\bar{Y}} = 3.306$

11. $est. \sigma_{Diff} = 4.977$

12. $t = \dfrac{61.8 - 40.2}{4.977} = 4.340, \quad df = (10 - 1) + (10 - 1) = 18$

13. Critical value = 2.101   The compute t is significant. Reject the null hypothesis.

14. The results indicate that participants watching the scary movie eat significantly more popcorn than the participants watching the musical.

15 and 16.

Child	Verbal	Nonverbal	D	D²
C. J.	3	6	-3	9
F. K.	5	8	-3	9
M. O.	7	9	-2	4
I. M.	4	8	-4	16
G. G.	2	4	-2	4
K. T.	1	1	0	0
B. W.	4	3	1	1
M. B.	2	8	-6	36

17. $\sum D = -19$

18. $\sum D^2 = 79$

19. $\overline{D} = -2.375$

20. $est.\sigma_{Diff} = \sqrt{\dfrac{\dfrac{79}{8} - (-2.375)^2}{7}} = .778$

21. $t = \dfrac{-2.375}{.778} = -3.053, \ df = 7$

22. Critical value = 2.365. The computed value of t is significant. Reject the null hypothesis.

23. The findings reveal that when children are presented with the nonverbal math problems, they solve significantly more problems correctly.