

EXERCISE 1

(a) Yes, because in Levene statistic  $\text{sig} > \alpha$   
 $0.525 > 0.05$

(b)

	SS	df	MS	F
BETWEEN	3080,933	$k-1$ 2	1540.466	180.53
WITHIN	102.4	$k(n-1)$ 12	8.533	
TOTAL	3183,333	14		

(c) Yes because in ANOVA  $\text{sig} < \alpha$   
 $<.0001 < 0.05$

(d) Yes because in Scheffe': all  $\alpha$   
 $\text{sig} < 0.05$   
 - NOVICE-AMATEUR  $<.0001 < 0.05$   
 - NOVICE-SEMIPROFFESIONAL  $<.0001 < 0.05$   
 - AMATEUR-SEMIPROFFESIONAL  $<.0001 < 0.05$

EXERCISE 2

(a) Yes because in Greenhouse-Geisser  $\text{sig} < \alpha$   
 $0.032 < 0.05$

(b)  $F(\alpha, k-1, k(n-1)) = F(0.05, 3, 15) = 3.29$        $F_{emp} > F_t$   
 $6.832 > 3.29 - H_0$

We have to continue with stage 2

(c)  $F(0.05, 1, 5) = 6.61$        $F_{emp} > F_t$   
 $6.832 > 6.61 - H_0$       We can conclude that differences are statistically significant

### EXERCISE 3

	X	Y	$e = Y - \hat{Y}$	$\hat{Y}$
PARTICIPANT 1	0	2	2	0
PARTICIPANT 2	6	26	-1	27

(a)

$$e_1 = Y - \hat{Y} \rightarrow 2 = 2 - \hat{Y}$$
$$0 = +\hat{Y}$$

$$e_2 = Y - \hat{Y} \rightarrow -1 = 26 - \hat{Y}$$
$$+ 27 = +\hat{Y}$$

$$\hat{Y} = a + bX$$

$$P1 - 0 = a + b \cdot 0 \rightarrow a = 0$$

$$P2 - 27 = a + b \cdot 6$$

$$\hookrightarrow 27 = 6b$$

$$4.5 = b$$

$$\boxed{\hat{Y} = 4.5X}$$

(b) a: Performance in work for a participant that obtained 0 in attention is 0.

b: For each point that attention increases, the average value of performance increases 4.5

Ex. 4.

$a_1$	$a_2$	$d$	$d - \bar{D}$	$(d - \bar{D})^2$
6	7	-1	0.14	0.02
4	6	-2	-0.86	0.74
8	9	-1	0.14	0.02
2	4	-2	-0.86	0.74
3	3	0	1.14	1.3
5	6	-1	0.14	0.02
7	8	-1	0.14	0.02
$\Sigma$		-8		2.86

$$\bar{D} = \frac{\Sigma d}{n} = \frac{-8}{7} = -1.14$$

$$S_D = \sqrt{\frac{\Sigma (d_j - \bar{D})^2}{n_1 + n_2 - 2} \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}$$

$$S_D = \sqrt{\frac{2.86}{7+7-2} \left( \frac{1}{7} + \frac{1}{7} \right)} = 0.26$$

$$t = \frac{\bar{D} - \mu_0}{S_D} = \frac{-1.14}{0.26} = -4.38$$

$$t_{(0.05, n-1)} = t_{(0.05, 6)} = 2.447$$

$4.38 > 2.447$  — ~~4%~~ The intervention was useful