DAD 1
2017 MAY PARTIAL 2, EXERLISE 1

a. McNemar test because

- Samples were dependent ( 30 participants gave two measures: before and after the workshop).
- Both variables were nominal and dichotomous.
  - Variable 1: measurement moments → two conditions: before and after
  - Variable 2: result in an exam → two conditions: pass or fail

b. No because sig $>$ $\alpha$ → Null hypothesis is accepted
0.063 0.05

EXERCISE 2

a. sig $<0.001$ — ~~No~~

$R^2 = (-0.959)^2 = 0.92$ — High effect size ($> 0.67$)

The effect probably exists

b. No because the relationship is inverse ($r = -0.959$, a negative value).

FINAL
JANUARY, 2016 PARTIAL 1

Ex. 3

| G.1 | G.2 | G3 |
|---|---|---|
| 44 (5.5) | 70 (10) | 80 (17) |
| 44 (5.5) | 77 (15) | 76 (14) |
| 54 (8) | 48 (7) | 34 (4) |
| 32 (3) | 64 (9) | 80 (17) |
| 21 (1) | 71 (11) | 73 (12) |
| 28 (2) | 75 (13) | 80 (17) |
| $\Sigma R$ 25 | 65 | 81 |

$$H = \frac{12}{N(N+1)} \Sigma \frac{R_j^2}{n} - 3(N+1)$$

$$H = \frac{12}{18(18+1)} \left[ \frac{25^2}{6} + \frac{65^2}{6} + \frac{81^2}{6} \right] - 3(18+1) = 9.73$$

$$H(\alpha, k, n_1, n_2, n_3) = H(0.05, 3, 6, 6, 6) = 5.891$$

$9.73 > 5.801$ — ~~H0~~

EXERCISE 4

| BEFORE | AFTER | $D_j$ | $D_j - \bar{D}$ | $(D_j - \bar{D})^2$ |
|---|---|---|---|---|
| 40 | 40 | 0 | -5.4 | 29.16 |
| 35 | 30 | 5 | -0.4 | 0.16 |
| 25 | 20 | 5 | -0.4 | 0.16 |
| 45 | 40 | 5 | -0.4 | 0.16 |
| 34 | 32 | 2 | -3.4 | 11.56 |
| 38 | 20 | 18 | 12.6 | 158.76 |
| 44 | 35 | 9 | 3.6 | 12.96 |
| 24 | 20 | 4 | -1.4 | 1.96 |
| 14 | 14 | 0 | -5.4 | 29.16 |
| 26 | 20 | 6 | 0.6 | 0.36 |
| | | 54 | | 244.4 |

$$\bar{D} = \frac{\Sigma D}{N} = \frac{54}{10} = 5.4$$

$$t = \frac{\bar{D} - \mu_0}{S_D} = \frac{5.4 - 0}{1.65} = 3.27$$

$$S_D = \sqrt{\frac{\Sigma (D_j - \bar{D})^2}{n_1 + n_2 - 2}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)} = \sqrt{\frac{244.4}{10+10-2}\left(\frac{1}{10} + \frac{1}{10}\right)} = \sqrt{13.58 \cdot 0,2} = \sqrt{2.716} = 1.65$$

$t$ $\quad$ $t(\alpha, n-1) = t(0.05, 9)$

$3.27 > 2.262$ ~~H0~~

There are statistically significant differences