2017 JANUARY PARTIAL 2

EXERCISE 1

$b = r_{xy} \cdot \frac{S_y}{S_x}$ — both are equal $\rightarrow 0.8 = r_{xy} \cdot 1$

$0.8 = r_{xy} \longrightarrow r^2_{y1} = 0.8^2 = 0.64$

$R^2_{y.12} = 0.64 + 0.24 = 0.88 \longrightarrow R_{y.12} = \pm\sqrt{0.88} = 0.938$

EXERCISE 2

a) $R^2_{Y.12} = \frac{SS_{exp}}{SS_T} = \frac{70}{50+60} = \frac{70}{110} = 0.636$

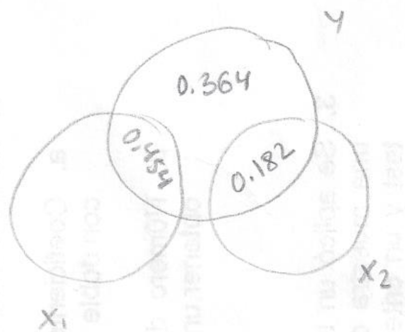
b) $SS_{exp} = 70 - 50 = 20$ because X_1 and X_2 don't correlate

$SS_{res} = SS_T - SS_{exp} = 110 - 20 = 90$

c) $r^2_{Y1} = \frac{50}{110} = 0.454 \longrightarrow r_{Y1} = \pm\sqrt{0.454} = 0.674$

$r^2_{Y2} = \frac{20}{110} = 0.182 \longrightarrow r_{Y2} = \pm\sqrt{0.182} = 0.427$

d)



$1 - R^2_{Y.12} = 1 - 0.636 = 0.364$

EXERCISE 3

a)

	SEMIP.	VIF.
X_1	-0.008	23.256
X_2	-0.11	23.256

$r^2_{Y1} = (-0.915)^2 = 0.837$

$r^2_{Y2} = (-0.918)^2 = 0.843$

$R^2_{Y.12} = 0.849$

$R^2_{Y(1.2)} = R^2_{Y.12} - r^2_{Y2} = 0.849 - 0.843 = 0.006$

$R_{Y(1.2)} = \sqrt{0.006} = -0.08$ xq b es negativa

$R^2_{Y(2.1)} = R^2_{Y.12} - r^2_{Y1} = 0.849 - 0.837 = 0.012$

$R_{Y(2.1)} = \sqrt{0.012} = -0.11$ → xq b negativa

$VIF = \dfrac{1}{tolerance} = \dfrac{1}{0.043} = 23.256$

b) $TOLERANCE = 1 - R^2_i$ - correlation of the variable of interes with the other independent variables.

$0'043 = 1 - R^2_{12}$

$0'043 - 1 = -R^2_{12}$

$0.957 = R^2_{12} \longrightarrow r_{12} = \sqrt{0.957} = 0.978$

Positive sign because both variables present a negative relationship with Y

EXERCISE 4

a. No because sig. $>$ α
0.834 0.05

b. No because sig $>$ α
0.569 0.05

c) Yes because in factor 1 * Gender, in Greenhouse-Geisser, sig $<$ α
<0.0001 0.05

d) 3 because the degrees of freedom in factor 1, Sphericity Assumed, is $2 = k-1$, being k the number of groups or conditions (number of different types of words in this case).