

① $R^2_{Y1} = \frac{2000}{7000} = 0,286$

$R^2 = \frac{SS_{exp.}}{SS_T}$

$SS_T = 2000 + 5000 = 7000$

② $R^2_{Y.12} = \frac{3500}{7000} = 0,5$

③ number of independent vbles

	SS	df	MS	F	sig
Reg.	2300	3	766.667	0.7	.611
Res.	6571.44	6	1095.24		
Total	8871.44	N-1 = 9			

$F = \frac{MS_{exp}}{MS_{res}}$

$0.7 = \frac{766.667}{MS_{res}} \rightarrow MS_{res} = 766.667$

$MS_{res} = \frac{766.667}{0.7} = 1095.24$

⑤ $MS_{res} = \frac{SS_{res}}{df_{res}} \rightarrow 1095.24 = \frac{SS_{res}}{6} \rightarrow SS_{res} = 1095.24 \cdot 6 = 6571.44$

$R^2 = \frac{2300}{8871.44} = 0,26$

⑥ H_0

Effect size ≤ 0.8 low
 ≥ 0.67 High

0.25 - medium-low

} The effect probably doesn't exist.

③

Questions 7-10

$$\begin{aligned}\Sigma X &= 172 \\ \Sigma X^2 &= 3166 \\ \Sigma XY &= 2264.5 \\ \Sigma Y &= 129.5 \\ \Sigma Y^2 &= 1708.25\end{aligned}$$

$$\begin{aligned}\textcircled{7} \quad b &= \frac{\Sigma XY - \frac{\Sigma X \Sigma Y}{N}}{\Sigma X^2 - \frac{(\Sigma X)^2}{N}} = \frac{2264.5 - \frac{172 \cdot 129.5}{10}}{3166 - \frac{172^2}{10}} \\ &= \frac{2264.5 - 2227.4}{3166 - 2958.4} = \frac{37.1}{207.6} = 0.179\end{aligned}$$

$$\begin{aligned}\textcircled{9} \quad r_{xy} &= \frac{\Sigma XY - \frac{\Sigma X \Sigma Y}{N}}{\sqrt{\Sigma X^2 - \frac{(\Sigma X)^2}{N}} \sqrt{\Sigma Y^2 - \frac{(\Sigma Y)^2}{N}}} = \frac{2264.5 - \frac{172 \cdot 129.5}{10}}{\sqrt{3166 - \frac{172^2}{10}} \sqrt{1708.25 - \frac{129.5^2}{10}}} \\ &= \frac{37.1}{\sqrt{207.6} \sqrt{31.225}} = \frac{37.1}{14,408 \cdot 5,588} = \frac{37.1}{80.512} = 0.461\end{aligned}$$

$$\textcircled{10} \quad R^2 = 0.461^2 = 0.212$$

$$\textcircled{10} \quad 1 - R^2 = 1 - 0.212 = 0.788$$