Hobbies, Caffeine Intake

x	y	x·y	x^2	y^2
250	20	5000	62500	400
120	12	1440	14400	144
0	26	0	0	676
200	16	3200	40000	256
40	4	160	1600	16
0	2	0	0	4
80	12	960	6400	144
690	92	10760	114400	2054

$$r = \frac{\Sigma xy - \frac{(\Sigma x)(\Sigma y)}{n}}{\sqrt{\Sigma x^2 - \frac{(\Sigma x)^2}{n}} \cdot \sqrt{\Sigma y^2 - \frac{(\Sigma y)^2}{n}}} = \frac{10700 - \frac{(690)(92)}{7}}{\sqrt{114900 - \frac{(690)^2}{7}} \cdot \sqrt{2054 - \frac{(92)^2}{7}}}$$

$$= \frac{-161}{217.29} = \frac{-161}{624} =$$

$r = .258$

$\rho = 0.6$

$n = 7$

$\alpha = .05$

=

GPA, Caffeine Intake

x	y	xy	x^2	y^2
200	4	800	40000	16
50	2	100	2500	4
20	2	40	400	4
120	3	360	14400	9
10	3	30	100	9
150	3	450	22500	9
0	3	0	0	9
80	4	320	6400	16
630	24	2100	73,700	76

$$\Rightarrow \frac{2100 - \frac{(630)(24)}{8}}{\sqrt{73900 - \frac{(630)^2}{8}} \cdot \sqrt{76 - \frac{(24)^2}{8}}}$$

$$r = \frac{210}{\sqrt{24268} \cdot 2} = \frac{210}{336} = 0.625$$

$n = 8$

$\rho = 0.758$

Attendance, caffeine intake

x	y	xy	x^2	y^2
5	0	0	25	0
3	40	120	9	1600
5	70	350	25	4900
4	400	1600	16	160000
5	160	800	25	25600
3	30	90	9	900
5	200	1000	25	40000
2	50	100	4	2500
32	950	4060	138	235500

$$r = \frac{4060 - \frac{(32)(950)}{8}}{\sqrt{138 - \frac{32^2}{8}} \cdot \sqrt{235500 - \frac{950^2}{8}}} = \frac{260}{\sqrt{10} \cdot \sqrt{122868}} = \frac{260}{(3.1)(350)} = 0.152$$

$p: 0.164$

$\alpha: 0.05$

$n = 8$