

12.1

Date

n	X	Y	X <sup>2</sup>	Y <sup>2</sup>	XY
1	4	18	16	324	72
2	6	12	36	144	72
3	7	13	49	169	91
4	11	8	121	64	88
5	14	7	196	49	98
6	17	7	289	49	119
n = 7	21	4	441	16	84
Σ	80	69	1148	815	624

$$r = \frac{SS_{xy}}{\sqrt{(SS_{xx} \cdot SS_{yy})}}$$

$$SS_{xy} = \sum XY - \frac{(\sum X \cdot \sum Y)}{n} = 624 - \frac{(80 \cdot 69)}{7} = 624 - 788.6 = \boxed{-164.6}$$

$$SS_{xx} = \sum X^2 - \frac{(\sum X)^2}{n} = 1148 - \frac{(80)^2}{7} = 1148 - 914.3 = \boxed{233.7}$$

$$SS_{yy} = \sum Y^2 - \frac{(\sum Y)^2}{n} = 815 - \frac{(69)^2}{7} = 815 - 680.1 = \boxed{134.9}$$

$$r = \frac{-164.6}{\sqrt{(233.7)(134.9)}} = \frac{-164.6}{177.6} = \boxed{-0.927}$$

