

KATA LOGO Mathematik – Statistik – Korrelationskoeffizient

1.	2.	3.	4.	5.	17.
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y Dach pro Wert in
Tabelle eintragen

i	x _i	y _i	x _i ²	y _i ²	x _i · y _i	y Dach = 7 - 0,5x
1	2	5	4	25	10	6
2	2	7	4	49	14	6
3	4	4	16	16	16	5
4	4	6	16	36	24	5
5	5	4,5	25	20,25	22,5	4,5
6	6	3	36	9	18	4
7	6	5	36	25	30	4
8	8	3	64	9	24	3
Σ	37	37,5	201	189,25	158,5	

6.	x quer
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4,625

7.	y quer
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4,688

8.	x quer · y quer
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4,625 · 4,688 =	21,68
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9.	$(\bar{x})^2$			21,39
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10.	$(\bar{y})^2$			21,98
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11.	Var(x)	$(1/n \sum x_i^2) - (\bar{x})^2$	$201/8 - 21,39 =$	3,735
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12.	SA(x)	$\sqrt{s^2}$	$\sqrt{3,735} =$	1,93
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13.	Var(y)	$(1/n \sum y_i^2) - (\bar{y})^2$	$189,25/8 - 21,98 =$	1,676
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14.	SA(y)	$\sqrt{s^2}$	$\sqrt{1,676} =$	1,29
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15.	b ausrechnen	$\frac{\sum (x_i \cdot y_i) - (n \cdot \bar{x} \cdot \bar{y})}{\sum x_i^2 - (n \cdot \bar{x})^2}$	$\frac{158,5 - (8 \cdot 4,625 \cdot 4,688)}{201 - 8 \cdot 21,39}$	Minus 0,5	b für y Dach = a + bx
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16.	a ausrechnen (durch b einsetzen)	$\bar{y} - b \cdot \bar{x}$	$4,688 - (-0,5 \cdot 4,625) =$	7	"a" in y Dach = a + bx
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!	18.	Kovarianz Cov (X,Y)	$1/n \sum (x_i \cdot y_i) - (\bar{x} \cdot \bar{y})$	$158,5/8 - 21,68 =$	Minus 1,8672
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19.	Korrelationskoeffizient (Pearson)	$r = \text{Cov}(X,Y) / \text{SA}(x) \cdot \text{SA}(y)$	$\text{Minus } 1,8672 / 1,93 \cdot 1,29$	Minus 0,7447
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