

Analyzes the data table by logarithmic regression and draws the chart.

Logarithmic regression:  $y=A+B\ln(x)$

(input by clicking each cell in the table below)

data

No.	x	y
1	0.25	10
2	0.5	15
3	0.75	21
4	1	26
5	1.2	29

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Execute

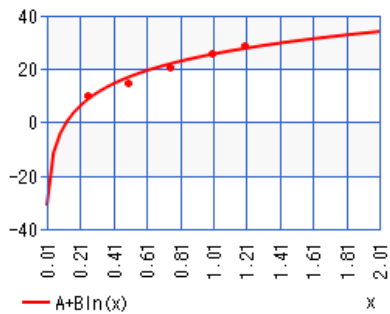
Clear

Store/Read

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10digit ▼

function	value
mean of x	0.645997005
mean of y	20.2
correlation coefficient r	0.9812401368
A	25.54293111
B	12.22749469



Guidelines for interpreting correlation coefficient  $r$  :

$0.7 < |r| \leq 1$

strong correlation

$0.4 < |r| < 0.7$

moderate correlation

$0.2 < |r| < 0.4$

weak correlation

$0 \leq |r| < 0.2$

no correlation

Logarithmic regression

(1) mean :  $\overline{\ln x} = \frac{\sum \ln x_i}{n}, \quad \bar{y} = \frac{\sum y_i}{n}$

(2) trend line :  $y = A + B \ln x, \quad B = \frac{S_{xy}}{S_{xx}}, \quad A = \bar{y} - B \overline{\ln x}$

(3) correlation coefficient :  $r = \frac{S_{xy}}{\sqrt{S_{xx}} \sqrt{S_{yy}}}$

$$S_{xx} = \sum (\ln x_i - \overline{\ln x})^2 = \sum (\ln x_i)^2 - n \cdot \overline{\ln x}^2$$
$$S_{yy} = \sum (y_i - \bar{y})^2 = \sum y_i^2 - n \cdot \bar{y}^2$$
$$S_{xy} = \sum (\ln x_i - \overline{\ln x})(y_i - \bar{y}) = \sum \ln x_i y_i - n \cdot \overline{\ln x} \bar{y}$$