

## Example of Simple Linear Regression in SAS

### SAS PROGRAM:

```
options nodate nonumber nocenter;
data joe;
    input age numb_attempts;
datalines;
20 5
55 12
30 10
50 11
25 6
40 .
run;

proc reg data=joe;
    title1 'Simple Linear Regression using SAS';
    model numb_attempts=age/p r clb;
run;
```

### SAS OUTPUT:

Simple Linear Regression using SAS

The REG Procedure

Model: MODEL1

Dependent Variable: numb\_attempts

Number of Observations Read	6
Number of Observations Used	5
Number of Observations with Missing Values	1

#### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	31.93402	31.93402	13.95	0.0335
Error	3	6.86598	2.28866		
Corrected Total	4	38.80000			

Root MSE	1.51283	R-Square	0.8230
Dependent Mean	8.80000	Adj R-Sq	0.7641
Coeff Var	17.19127		

#### Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t	95% Confidence Limits	
Intercept	1	2.26804	1.87499	1.21	0.3130	-3.69900	8.23508
age	1	0.18144	0.04857	3.74	0.0335	0.02686	0.33603

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The REG Procedure

Model: MODEL1

Dependent Variable: numb\_attempts

### Output Statistics

Obs	Dependent Variable	Predicted Value	Std Error Mean Predict	Residual	Std Error Residual	Student Residual	-2 -1 0 1 2	Cook's D
1	5.0000	5.8969	1.0304	-0.8969	1.108	-0.810	*	0.284
2	12.0000	12.2474	1.1443	-0.2474	0.990	-0.250		0.042
3	10.0000	7.7113	0.7367	2.2887	1.321	1.732	***	0.466
4	11.0000	11.3402	0.9593	-0.3402	1.170	-0.291		0.028
5	6.0000	6.8041	0.8621	-0.8041	1.243	-0.647	*	0.101
6	.	9.5258	0.7039	.	.	.		.

Sum of Residuals 0

Sum of Squared Residuals 6.86598

Predicted Residual SS (PRESS) 13.87545