

Linearization of a model with Data

A simple model has been created to estimate the velocity, v , of a homemade rocket based on the time after ignition, t , has occurred.

$$v = \alpha_1 t e^{\beta_1 t}$$

Linearize this model in the coefficients and solve for the coefficients based on the data obtained from the homemade rocket launch.

t , time (sec)	1	2	4	6	9	13	15	17	18
v , velocity (m/s)	5	25	75	85	90	72	57	38	25

Calculate r^2 for this model.

Is the simple model a good choice for this launch?

Calculate the value of $t = 10$ using the spline method of interpolation.