The Arrhenius equation is written as

$$k = Ae^{-Ea/RT} \quad \text{(xvi)}$$

$$\ln k = \ln A - \frac{Ea}{RT} \quad \text{(xvii)}$$

A plot of ln k versus 1/T will give a straight line with slope equal to $-\frac{Ea}{RT}$ and intercept on y axis as ln A.

At two different temperatures T_1 and T_2 , a reaction has rate constants k_1 and k_2

$$\ln k_1 = \ln A - \frac{Ea}{RT1} \quad \text{(xviii)}$$

$$\ln k_2 = \ln A - \frac{Ea}{RT2} \quad \text{(xix)}$$

$$ln\frac{k1}{k2} = \frac{Ea}{RT}\left(\frac{1}{T2} - \frac{1}{T1}\right) \quad \text{(xx)}$$

The frequency factor A is nearly constant as the temperature is varied. A is related to the probability the frequency of collisions and the probability that the collisions are favourably oriented for reaction.

Reference Texts

Advanced Chemistry By Philip Matthews
Chemistry the Central Science by Brown and Murphy
Introduction to Physical Chemistry by G. I. Brown