

Answer on Question #55577 – Chemistry – General Chemistry

Question:

A --> products, time and concentration data were collected and plotted as shown here.

[A] M.....t (s)

0.700 0.0

0.662 30.0

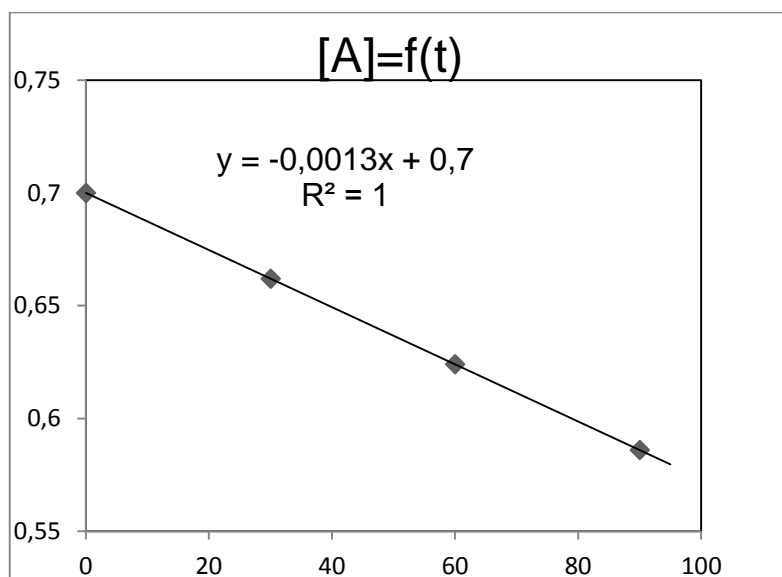
0.624 60.0

0.586 90.0

Determine the reaction order, the rate constant, and the units of the rate constant.

Answer:

Let's plot a graph $[A] = f(t)$ (concentration is a function of time).



It shows us linear dependence, what means that reaction has **zero order**.

In zero order reactions, the disappearance of reactants is

$$-d[A]/dT = k[A]_0 = k.$$

Its integrated form is

$$[A] = -kt + [A]_0.$$

Then constant rate is $k = 0.0013 \text{ M/s}$.

