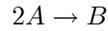The reaction to study is of the form :

$$2A \rightarrow B$$

$$G_r^o = n_B G_f^o(B) + n_A G_f^o(A) = z \left\{ G_f^o(B) - 2G_f^o(A) \right\} + n_o G_f^o(A)$$

Let $G_f^o(B) - 2G_f^o(A) = C$ and $n_o G_f^o(A) = D$

$$G_r^o(z) = Cz + D$$

A plot of G_r^o as a function of z gives a straight line of slope C and intercept D.

Now take the following limits :

$$\lim_{t \to 0} z = 0$$

$$\lim_{t \to \infty} z = \frac{n_o}{2}$$

$$\lim_{t \to 0} G_r^o(z) = D$$

$$\lim_{t \to \infty} G_r^o(z) = \frac{n_o}{2}C + D$$

From the initial behaviour of $G_r^o(z)$, you can define the change in the Gibb's free energy for the reaction : $\Delta G_r^o(z)$

$$\Delta G_r^o(z) = G_r^o(z) - \lim_{t \to 0} G_r^o(z) = Cz$$

For the reaction to be thermodynamically favorable C must negative. In your problem, $C = -4 \ KJ.mol^{-1}$

$$\frac{\Delta G_r^o(z)}{\Delta z} = C < 0$$

Define a function independent of z : $\dfrac{\Delta G_r^o(z)}{z} = C < 0$

Or the slope itself $\left\{ \dfrac{\partial \Delta G_r^o(z)}{\partial z} \right\}_T = C < 0$

This means that graph of $\dfrac{\Delta G_r^o(z)}{z} = f(z)$ gives the slope of $\Delta G_r^o(z) = g(z)$