# Assignment-1
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## Problem 4(a):

The following numbers,
$K+3, K+2, 3K-7$ and $2K-3$ are in proportion. Find $K$.

## Solution:

Given numbers,

$$\begin{aligned} a_1 &= K+3 \\ a_2 &= K+2 \\ a_3 &= 3K-7 \\ a_4 &= 2K-3 \end{aligned}$$

For the Proportionality of the numbers, they must satisfy,

$$\frac{a_1}{a_2} = \frac{a_3}{a_4}$$

So we get,

$$\frac{K+3}{K+2} = \frac{3K-7}{2K-3}$$

By cross multiplication,

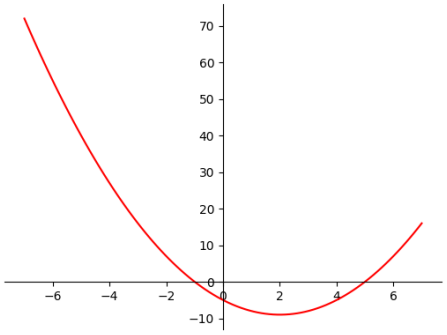


Figure 1: The Polynomial graph

$$\begin{aligned} (K+3)(2K-3) &= (3K-7)(K+2) \\ 2K^2+3K-9 &= 3K^2-K-14 \\ K^2-4K-5 &= 0 \\ K^2-5K+K-5 &= 0 \\ (K-5)(K+1) &= 0 \end{aligned}$$

From above $K$ will either be 5 or $-1$.

See Figure 1.