

Assignment-1

(ICSE 10, 2019)

Problem 4(a):

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

Solution:

Given numbers,

$$a_1 = K + 3$$

$$a_2 = K + 2$$

$$a_3 = 3K - 7$$

$$a_4 = 2K - 3$$

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,

$$(K + 3)(2K - 3) = (3K - 7)(K + 2)$$

$$2K^2 + 3K - 9 = 3K^2 - K - 14$$

$$K^2 - 4K - 5 = 0$$

$$K^2 - 5K + K - 5 = 0$$

$$(K - 5)(K + 1) = 0$$

From above K will either be 5 or -1 .

Verification in C-code and figs.