The numbers a, b and c are irrational numbers and not equal.

abc is rational.

Write down possible values of a, b and c

A sequence is defined by the term-to-term rule
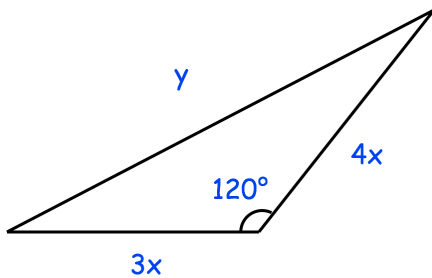
$$u_{n+1} = 5u_n + 2$$

$$u_2 = 22$$

Find u_1

Make x the subject of

$$y = \dfrac{c}{(x+b)^3}$$

Work out the ratio $y : x$

A scientist wants to estimate the number of lions living in a region.
On Thursday, he locates and tags some lions. On Friday he locates 10 less lions than he had on Thursday. 4 were tagged. The scientist works out an estimate for the total number of lions living in the region.

He notices that the number of lions that he had caught on Thursday, was a fifth of the total number of lions.
How many lions live in the region?