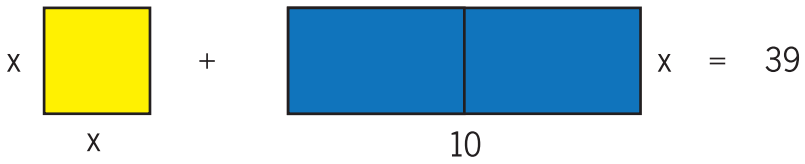
SENHOR ALGORITMO

O Senhor Algoritmo é o astrónomo e matemático *Abu Ja Far Muhammad ibn Musa Al-Khwarizmi*. O seu nome significa: Muhammad, filho de Musa, da região de Khwarezm (na Ásia Central). De "Al-Khwarizmi" vêm as palavras "algarismo" e "algoritmo". O Senhor Algoritmo terá vivido entre os anos 780 e 850, e terá trabalhado entre 813 e 833 numa academia em Bagdad. É autor do primeiro tratado de álgebra, chamado: *al-Mukhtasar fi Hisab al-Jabr wa l-Muqabala*. "al-Jabr" significa a operação de restauração ou completação (na resolução de equações). Dessa palavra vem a palavra "álgebra".

Algoritmo para determinar a solução positiva da equação $x^2+10x=39$

Actividade 1:

Considere a seguinte representação geométrica da equação:



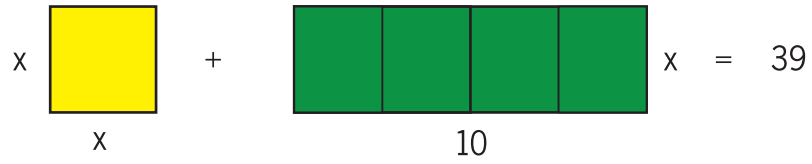
1. Construa um quadrado com as quatro peças (o quadrado amarelo, os dois rectângulos azuis e o quadrado vermelho).

2. Determine a área do quadrado vermelho.

3. Determine x, o comprimento do lado do quadrado amarelo.

Actividade 2:

Considere a seguinte representação geométrica da equação:



1. Construa um quadrado com peças (o quadrado amarelo, os quatro rectângulos verdes e os quadrados brancos).

2. Determine a área do quadrado branco.

3. Determine x, o comprimento do lado do quadrado amarelo.

فأما الأموال والجذور التى تعدل العدد فمثل قولك
مال وعشرة أجذاره يعدل تسعة وثلاثين درهما ومعناه أى مال اذا زدت عليه مثل
عشرة أجذاره بلغ ذلك كله تسعة وثلاثين . فبابه[٢٠] أن تنصف الأجذار وهى فى
هذه المسئلة خمسة فتضربها فى مثلها فتكون خمسة وعشرين فتزيدها على التسعة
والثلاثين فتكون أربعة وستين فتأخذ جذرها وهو ثمانية فتنقص منه نصف
الأجذار هو خمسة فيبقى ثلاثة وهو جذر المال الذى تريد والمال تسعة .

As for squares and roots equal to a number, it is as when you say this: a square and ten of its roots equal thirty-nine dirhams.
Its meaning is that the square, if you add to it the equivalent of ten of its roots [is such that] it will become thirty-nine.
Its method [of solution] consists in dividing the roots by two, and that is five in this problem. You multiply it by itself and this will be twenty-five. You add it to thirty-nine. This will give sixty-four. You then take its square root which is eight and you subtract from it half [the number] of the roots and that is five. There remains three and that is the root that you are seeking and the square is nine.

from Al-Khwārizmī, *al-Jabr wa l-Muqābala* (*c.* 860).
The text describes an algorithm for solving certain types of quadratic equations through using the example $x^2 + 10x = 39$.