



O número aureo





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1.618



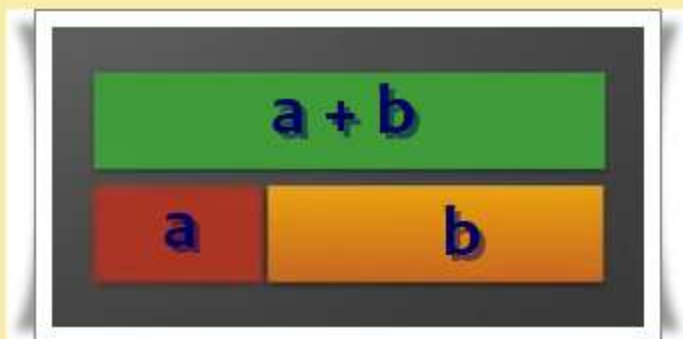
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1.618



Imaginamos de dividir um segmento em duas partes: a (menor) e b (maior) garantendo que a razão entre a e b seja igual à razão entre b e $a+b$



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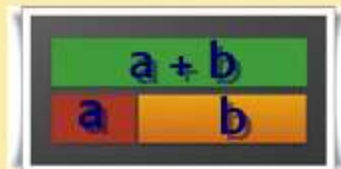


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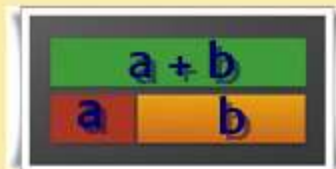
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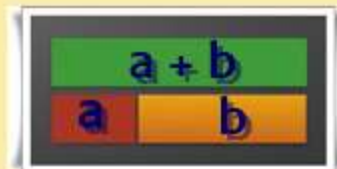
$$a / b = b / (a + b)$$

$$a(a + b) = b^2 \longrightarrow$$

$$x^2 + x - 1 = 0$$

$$x = a/b$$

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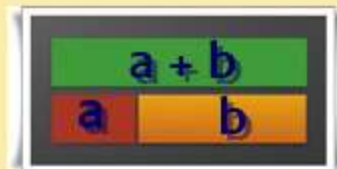
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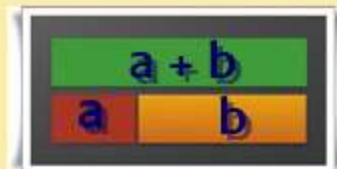
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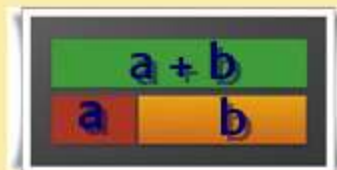


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$$b/a = 1.618$$





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In[9]:= Solve[x^2 + x - 1 == 0, x]

$$x = a/b$$

Out[9]= $\left\{ \left\{ x \rightarrow \frac{1}{2} (-1 - \sqrt{5}) \right\}, \left\{ x \rightarrow \frac{1}{2} (-1 + \sqrt{5}) \right\} \right\}$

In[14]:= Solve[x^2 + x - 1 == 0, x][[2]][[1]][[2]]

N[Solve[x^2 + x - 1 == 0, x][[2]][[1]][[2]]]

1 / Solve[x^2 + x - 1 == 0, x][[2]][[1]][[2]]

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Out[14]= $\frac{1}{2} (-1 + \sqrt{5})$

Out[15]= 0.618034

Out[16]= $\frac{2}{-1 + \sqrt{5}}$

Out[17]= 1.61803





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`In[9]:= Solve[x^2 + x - 1 == 0, x]` $x = a/b$
`Out[9]=` $\left\{ \left\{ x \rightarrow \frac{-1 - \sqrt{5}}{2} \right\}, \left\{ x \rightarrow \frac{-1 + \sqrt{5}}{2} \right\} \right\}$
negativa

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$$\frac{b}{a} = \frac{2}{-1 + \sqrt{5}}$$

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Out[14]:= $\frac{1}{2} (-1 + \sqrt{5})$

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$$\frac{b}{a} = \frac{2}{-1 + \sqrt{5}} \longrightarrow \frac{2}{-1 + \sqrt{5}} \cdot \frac{1 + \sqrt{5}}{1 + \sqrt{5}}$$

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$$\frac{b}{a} = \frac{2}{-1 + \sqrt{5}} \longrightarrow \frac{2}{-1 + \sqrt{5}} \cdot \frac{1 + \sqrt{5}}{1 + \sqrt{5}} = \frac{1 + \sqrt{5}}{2}$$

Out[17]:= 1.61803

