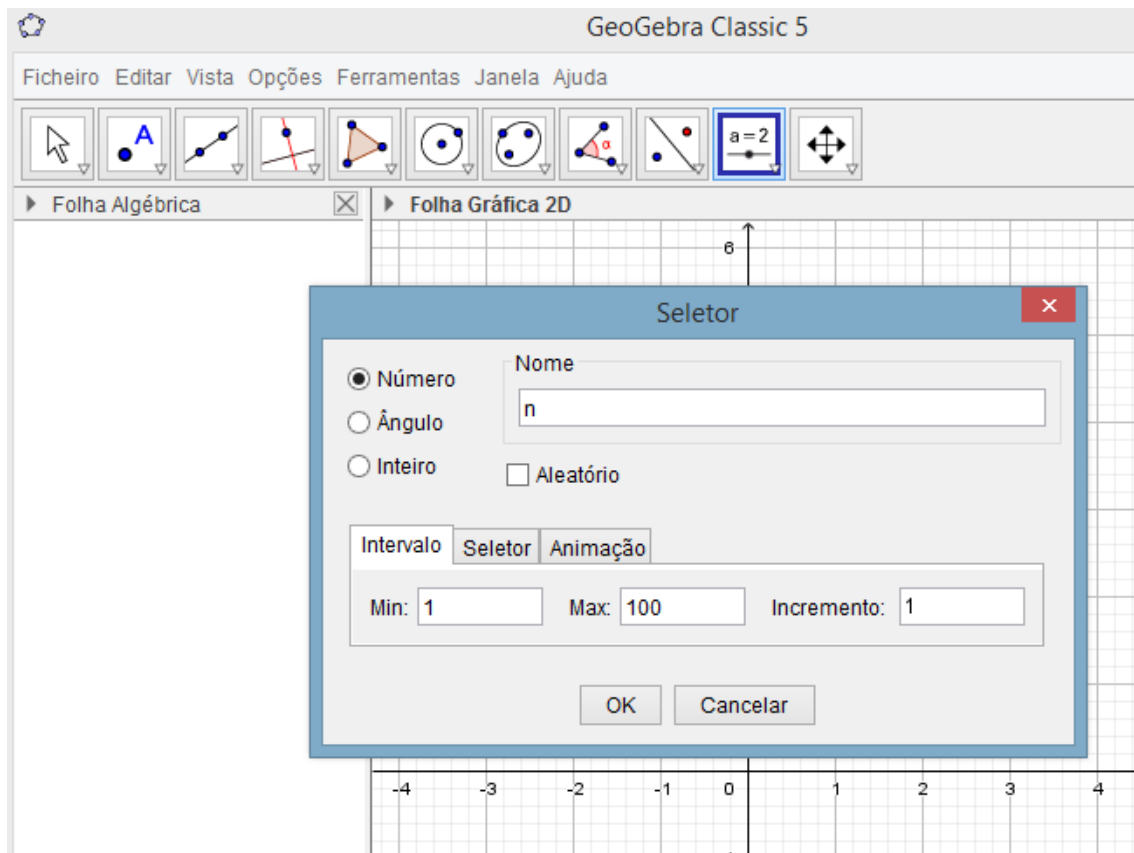


Square root and GeoGebra

Step 1: Create a Slider selector

Let's add a **slide selector** to allow the user to choose a number and view its square root.

Create one **selector** ranging from 1 to 100 in increment of 1



Step 2: Create a Square with Area n

How we want to visualize **perfect squares**, we will draw a square whose area is n.

1. Set a fixed point:



2. Create a second point based on the square root of n:



3. Construct the other vertices of the square:

```
C = (sqrt(n), sqrt(n))  
D = (0, sqrt(n))
```

4. Form the square by connecting the dots:

```
quadrado = Polygon(A, B, C, D)
```

Step 3: Add Dynamic Text

We want to dynamically display the square root of the chosen number.

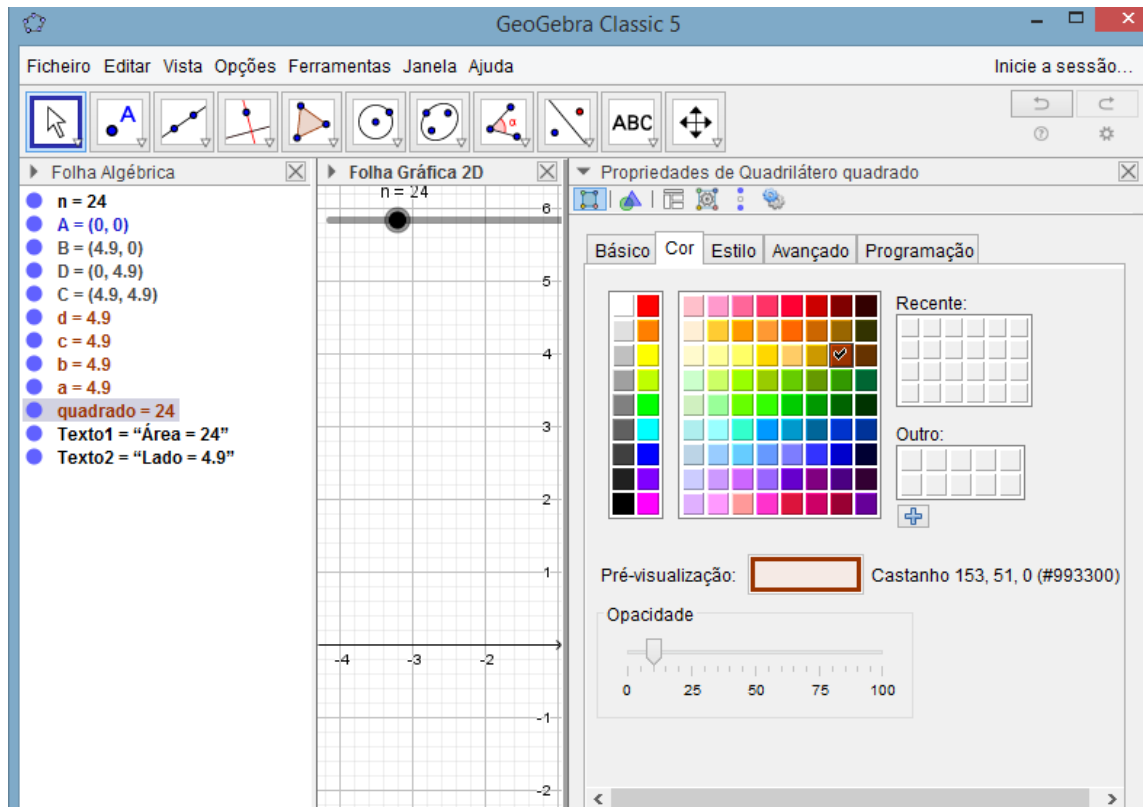
1. Create text that shows the value of n and its square root:

```
Text1 = Text("Area = " + n, (0, sqrt(n) + 0.5))  
Text2 = Text("Side = " + sqrt(n), (sqrt(n)/2, -0.5))
```

Note: $(0, \sqrt{n} + 0.5)$ represents the location of the graphic sheet where the text will appear **Area**

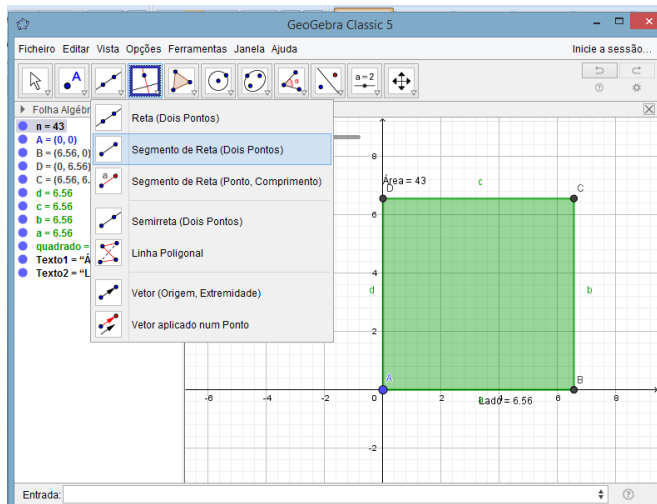
Step 4: Improve Visualization

1. **Fill and Colors:** Click on the square and go to "Properties" → "Color" → "Opacity". Choose a soft color.



2. Make the Square Root More Visible:

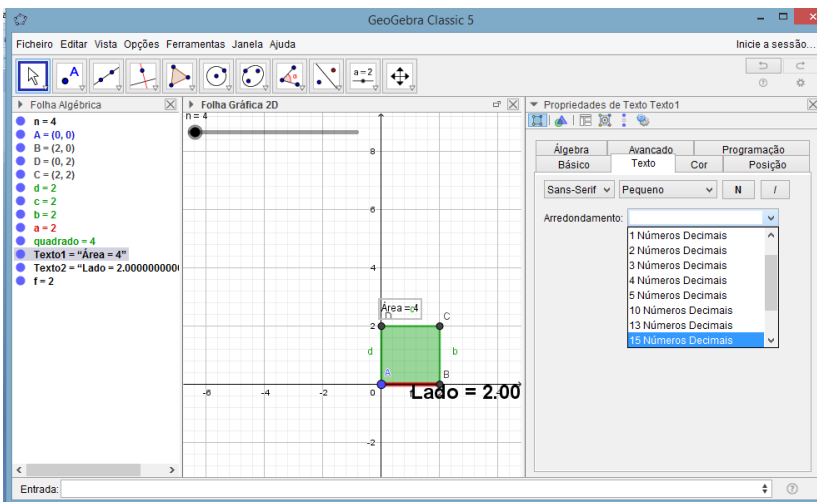
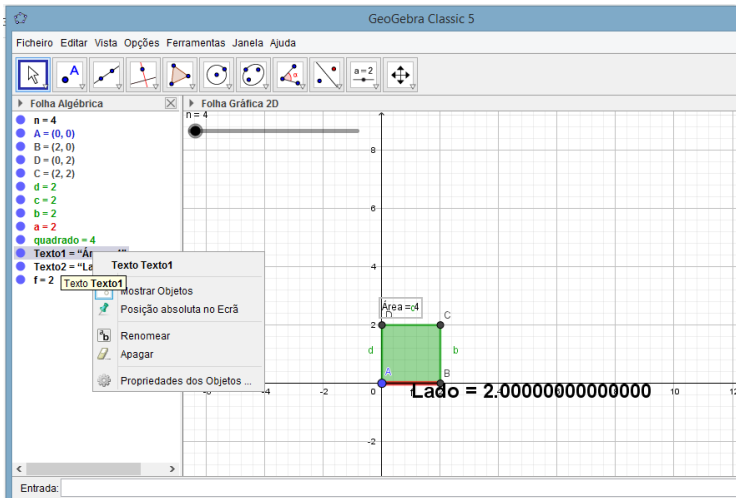
- Add a **straight segment** of $(0,0)$ until $(\sqrt{n}, 0)$ to highlight the square root and, in properties, change the color and thickness of the line.



Step 5: Change the number of decimal places in the side and area measurements.

1. In the algebra sheet, click the **Texto1=Area** and go to "Properties" → "text" → "Rounding" → 15 decimal places. Also change the font size to **Big** and click **B** (bold).

2. Follow the same steps for the **Text2=Side**.



Step 6: Test and Save the Applet

Interact with the slider selector and see how the area of the square changes.

Step 7: Questionnaire


- 1- Knowing that a square has an area of 49 cm^2 , what is the length of the side of this square? $\sqrt{49}$ is it a rational or irrational number?

2- Consider a square with an area of 24 cm^2 . Can the side length of this square be expressed as a natural number or a non-repeating infinite decimal? Explain if $\sqrt{24}$ is a number rational or irrational.

3- Between each natural numbers is the number $\sqrt{31}$? Justify.

Good work!

Raiz quadrada

Participe da aula em www.geogebra.org/classroom/gffwkck 

ou digitando o código em www.geogebra.org/classroom

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