**Raiz dos Naturais com CHUTE INICIAL**

| | | |
|---|---|---|
| | **10** | 100 |
| **10** | 11 | 121 |
| 11 | 12 | 144 |
| 12 | 13 | 169 |
| 13 | 14 | 196 |
| 14 | 15 | 225 |
| 15 | 16 | 256 |
| 16 | 17 | 289 |
| 17 | 18 | 324 |
| 18 | 19 | 361 |
| 19 | 20 | 400 |

| | | | | |
|---|---|---|---|---|
| | **30** | 900 | | |
| **30** | 29 | 841 | | |
| 29 | 28 | 784 | | |
| 28 | 27 | 729 | | |
| 27 | 26 | 676 | | |
| 26 | 25 | 625 | | |
| 25 | 24 | 576 | | |
| 24 | 23 | 529 | | |
| 23 | 22 | 484 | | |
| 22 | 21 | 441 | | |
| 21 | 20 | 400 | | |

$$\frac{x}{x+1} \quad \frac{x}{x+1} \quad \frac{x^2}{x^2+[x+(x+1)]} \quad \frac{x^2}{(x+2)^2} \qquad = x^2+2x+1 \qquad = (x+1)^2$$

$$\frac{x}{x-1} \quad \frac{x}{x-1} \quad \frac{x^2}{x^2-[x+(x-1)]} \quad \frac{x^2}{(x-2)^2} \qquad = x^2-2x+1 \qquad = (x-1)^2$$

**Raiz de qualquer $Q$ real não negativo com CHUTE INICIAL**

$Q = 130$ $\qquad \sqrt{130} \sim 11$

$$x_1 = \frac{x^2+Q}{2x} \qquad x_1 = \frac{11^2+130}{2(11)} = 11{,}4$$

$$x_2 = \frac{x_1^2+Q}{2x_1} \qquad x_2 = \frac{11{,}4^2+130}{2(11{,}4)} = 11{,}402$$

$$x_{k+1} = \frac{x_k^2+Q}{2x_k} \rightarrow \sqrt{Q} \qquad x_3 = \frac{11{,}402^2+130}{2(11{,}402)} = 11{,}401754250992$$

$$x_{k+1} = \frac{x_k^2+130}{2x_k} \rightarrow \sqrt{130} \cong \boxed{11{,}4017542509914}$$