

3. Represente o número $x=114,55469$ em ponto flutuante, precisão simples. Mostre os passos na solução deste problema.

PASSO 1: Converter o número para binário

$$114/2 = 57, \text{ resto } \mathbf{0};$$

$$57/2 = 28, \text{ resto } \mathbf{1};$$

$$28/2 = 14, \text{ resto } \mathbf{0};$$

$$14/2 = 7, \text{ resto } \mathbf{0};$$

$$7/2 = 3, \text{ resto } \mathbf{1};$$

$$3/2 = \mathbf{1}, \text{ resto } \mathbf{1};$$

Parte inteira: **1110010₂**

$$0,55469 \times 2 = \mathbf{1},10938$$

$$0,10938 \times 2 = \mathbf{0},21876$$

$$0,21876 \times 2 = \mathbf{0},43752$$

$$0,43752 \times 2 = \mathbf{0},87504$$

$$0,87504 \times 2 = \mathbf{1},75008$$

$$0,75008 \times 2 = \mathbf{1},50016$$

$$0,50016 \times 2 = \mathbf{1},00032$$

$$0,00032 \times 2 = \mathbf{0},00064$$

$$0,00064 \times 2 = \mathbf{0},00128$$

$$0,00128 \times 2 = \mathbf{0},00256$$

$$0,00256 \times 2 = \mathbf{0},00512$$

$$0,00512 \times 2 = \mathbf{0},01024$$

$$0,01024 \times 2 = \mathbf{0},02048$$

$$0,02048 \times 2 = \mathbf{0},04096$$

$$0,04096 \times 2 = \mathbf{0},08192$$

$$0,08192 \times 2 = \mathbf{0},16384$$

$$0,16384 \times 2 = \mathbf{0},32768$$

$$0,32768 \times 2 = \mathbf{0},65536$$

$$0,65536 \times 2 = \mathbf{1},31072$$

$$0,31072 \times 2 = \mathbf{0},62144$$

$$0,62144 \times 2 = \mathbf{1},24288$$

$$0,24288 \times 2 = \mathbf{0},48576$$

$$0,48576 \times 2 = \mathbf{0},97152$$

$$0,97152 \times 2 = \mathbf{1},94304$$

Parte fracionária: **100011100000000000101001₂**

PASSO 2: Converter para o padrão IEEE 754

$$1110010,100011100000000000101001_2 \times 2^0 =$$

$$1,110010100011100000000000101001_2 \times 2^6$$

$$\text{Sinal} = 0_2$$

$$\text{Expoente} = 6 + 127 = 133 = 10000101_2$$

$$\text{Mantissa} = 11001010001110000000000_2$$

Número:

$$01000010111001010001110000000000_2$$