SPIN 201: Simulationen in den Naturwissenschaften

Monday, February 18, 2019 1:07 PM

Mündlich (nach der letzten Vorlesung) 60%

Übungen: 40%

0: 0000000000 int $(+2^{31}-1, -2^{31})$

-1: 1000000001

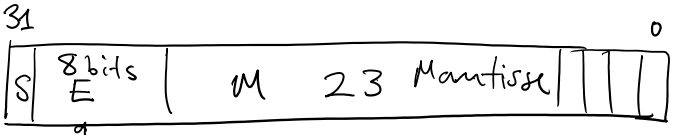
1111.....1

Gleitkomma Zahlen: $\pm 1.234 \times 10^{12}$

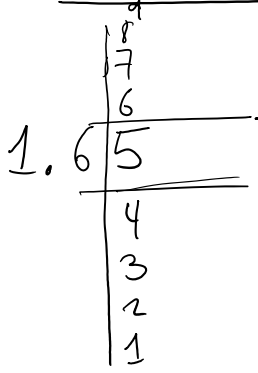
1985 IEEE-754

$\pm 1.0101110 \times 2^{101}$

S ? ?



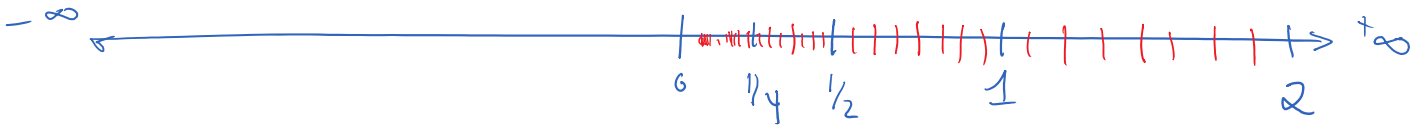
$S \times 1.M \times 2^{E-127}$



+ Round to nearest even

NaN

```
r2 = x*x + y*y + z*z;
assert(r2>=0);
r = sqrt(r2);
```



$f(x) = 0$

* +

$ax^2 + bx + c = 0$

A - B

$x = \frac{-b \pm \sqrt{b^2-4ac}}{}$

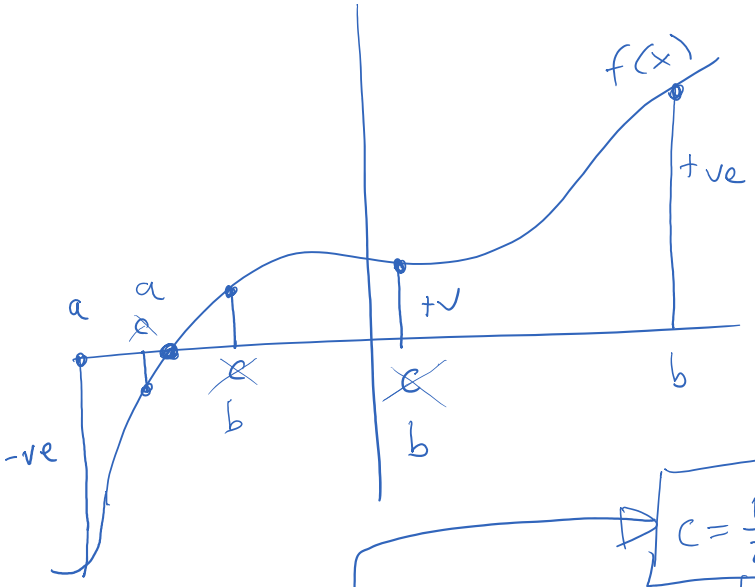
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

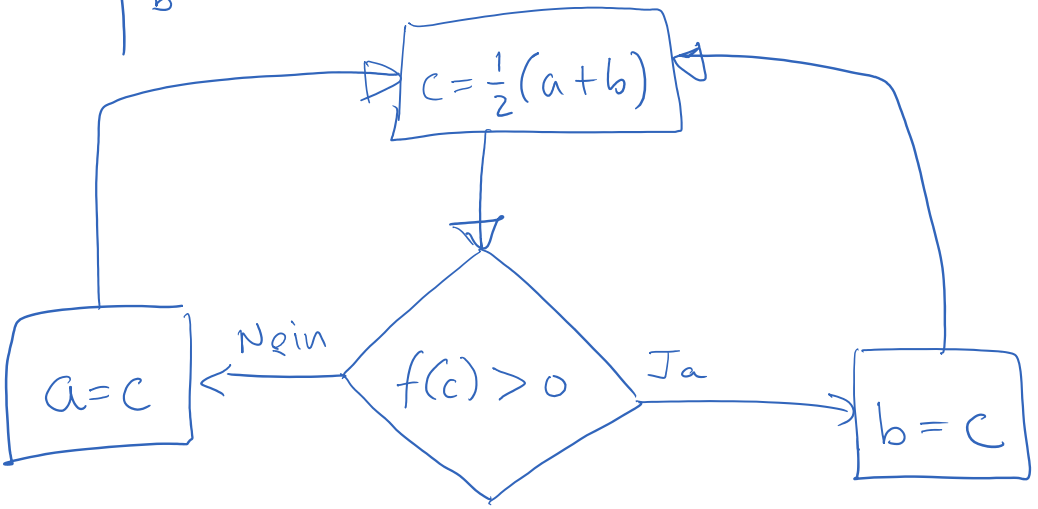
$x^x - 100 = 0$

$ax^3 + bx^2 + cx + d = 0$

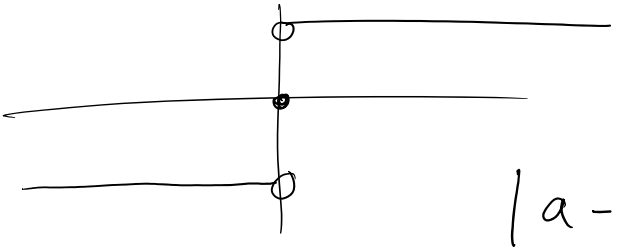
$ax^4 + \dots + e = 0$

$ax^5 + \dots + f = 0$





Wenn Anfangs f(a) positiv ist und f(b) negativ dann tausche zu Anfang a und b.



$|a - b| < \varepsilon_{absolut}$

oder

$\frac{|a - b|}{\quad} < \varepsilon_{relativ}$

$|c|$