

# Petite galerie des erreurs

des logiciels de calcul formel

$$\sqrt{x-3}(x-1)(x-5) = 0; \quad \mathcal{S}_{\mathbb{R}} = \{3; 5\}$$

Axiom	HP 50g	Maple	Maxima	TI-nspire cx	Xcas
{1; 3; 5}	{1; 3; 5}	{1; 3; 5}	{1; 3; 5}	{1; 3; 5}	{1; 3; 5}

$$\frac{x^2-1}{x-1} = 0; \quad \mathcal{S}_{\mathbb{R}} = \{-1\}$$

Axiom	HP 50g	Maple	Maxima	TI-nspire cx	Xcas
	{-1; 1}			avertissement	{-1; 1}

$$\frac{x^2-5}{x-\sqrt{5}} = 0; \quad \mathcal{S}_{\mathbb{R}} = \{-\sqrt{5}\}$$

Axiom	HP 50g	Maple	Maxima	TI-nspire cx	Xcas
	{-\sqrt{5}; \sqrt{5}}		{-\sqrt{5}; \sqrt{5}}	{-\sqrt{5}; \sqrt{5}}	{-\sqrt{5}; \sqrt{5}}

$$\text{Factoriser } x^2 - 5; \quad (x - \sqrt{5})(x + \sqrt{5})$$

Axiom	HP 50g	Maple	Maxima	TI-nspire cx	Xcas
$x^2 - 5$		$x^2 - 5$	$x^2 - 5$	$x^2 - 5$	

$$e^{x^2-5} = e^{-4x}; \quad \mathcal{S}_{\mathbb{R}} = \{-5; 1\}$$

Axiom	HP 50g	Maple	Maxima	TI-nspire cx	Xcas
$\emptyset$	« Irréductible »				« Ne sait pas »

$$z^2 = \bar{z}^2; \quad \mathcal{S}_{\mathbb{C}} = \mathbb{R} \cup i\mathbb{R}$$

Axiom	HP 50g	Maple	Maxima	TI-nspire cx	Xcas
	« Irréductible »	« Ne sait pas »	$z = -\bar{z}; z = \bar{z}$		$\mathbb{R}$

$$2x^3 - 3x^2 - 1 = 0; \quad \mathcal{S}_{\mathbb{R}} = \left\{ \sqrt[3]{\frac{1}{\sqrt{2}^3} + \frac{3}{8}} + \frac{1}{4\sqrt[3]{\frac{1}{\sqrt{2}^3} + \frac{3}{8}}} + \frac{1}{2} \right\}$$

Axiom	HP 50g	Maple	Maxima	TI-nspire cx	Xcas
« Ne sait pas »	$\emptyset$			{1,67765}	{≈ 1,6776506988}



## Axiom (July 2010)

`solve(sqrt(x-3)*(x-1)*(x-5))`

`[x = 5, x = 3, x = 1]` ■

`solve((x**2-1)/(x-1))`

`[x = -1]` ■

`solve((x**2-5)/(x-sqrt(5)))`

`[x = -√5]` ■

`factor(x**2-5)`

`x2 - 5` ■

`solve(exp(x**2-5)=exp(-4*x))`

`[]` ■

`solve(2*x**3-3*x**2-1)`

`[2x3 - 3x2 - 1 = 0]` ■



## HP 50g (HP50-C Revision #2.15)

$$\text{SOLVEVX}(\sqrt{x-3} \cdot (x-1) \cdot (x-5))$$

$$\{x = 3 \ x = 1 \ x = 1 \ x = 5\} \quad \blacksquare$$

$$\text{SOLVEVX}\left(\frac{x^2-1}{x-1}\right)$$

$$\{x = -1 \ x = 1\} \quad \blacksquare$$

$$\text{SOLVEVX}\left(\frac{x^2-5}{x-\sqrt{5}}\right)$$

$$\{x = -\sqrt{5} \ x = \sqrt{5}\} \quad \blacksquare$$

$$\text{FACTOR}(x^2-5)$$

$$(x-\sqrt{5})(x+\sqrt{5}) \quad \blacksquare$$

$$\text{SOLVEVX}(e^{x^2-5} = e^{-4x})$$

Not reducible to a rational expression ■

$$\text{SOLVE}(z^2 = \text{CONJ}(z)^2, z)$$

Not reducible to a rational expression ■

$$\text{SOLVEVX}(2 \cdot x^3 - 3 \cdot x^2 - 1)$$

$$\{\} \quad \blacksquare$$



## Maple (13)

`solve(sqrt(x-3)*(x-1)*(x-5));`

3, 1, 5 ■

`solve((x**2-1)/(x-1));`

-1 ■

`solve((x**2-5)/(x-sqrt(5)));`

$-\sqrt{5}$  ■

`factor(x**2-5);`

$x^2 - 5$  ■

`solve(exp(x**2-5)=exp(-4*x));`

1, -5 ■

`solve(z**2=conjugate(z)**2);`

$\text{RootOf}(\_Z^2 - \overline{\_Z}^2), \text{RootOf}(\_Z^2 - \overline{\_Z}^2)$  ■

`solve(2*x**2-3*x**2-1);`

(deux complexes),  $\left(\frac{1}{2^{\frac{3}{2}}} + \frac{3}{8}\right)^{\frac{1}{3}} + \frac{1}{4\left(\frac{1}{2^{\frac{3}{2}}} + \frac{3}{8}\right)^{\frac{1}{3}}} + \frac{1}{2}$  ■

*Merci à Daniel Clément pour ces résultats.*



## Maxima (5.21.1)

```
solve(sqrt(x-3)*(x-1)*(x-5));
```

$[x = 3, x = 1, x = 5]$  ■

```
solve((x**2-1)/(x-1));
```

$[x = -1]$  ■

```
solve((x**2-5)/(x-sqrt(5)));
```

$[x = -\sqrt{5}, x = \sqrt{5}]$  ■

```
factor(x**2-5);
```

$x^2 - 5$  ■

```
solve(exp(x**2-5)=exp(-4*x));
```

$[x = 1, x = -5]$  ■

```
declare(z, complex); solve(z**2=conjugate(z)**2);
```

$[z = -\text{conjugate}(z), z = \text{conjugate}(z)]$  ■

```
solve(2*x**2-3*x**2-1);
```

$\left[ (\text{deux complexes}), x = \left( \frac{1}{2^{\frac{3}{2}}} + \frac{3}{8} \right)^{\frac{1}{3}} + \frac{1}{4 \left( \frac{1}{2^{\frac{3}{2}}} + \frac{3}{8} \right)^{\frac{1}{3}}} + \frac{1}{2} \right]$  ■



## TI-nspire cx (3.0.1.1753)

$$\text{solve}(\sqrt{x-3} \cdot (x-1) \cdot (x-5) = 0, x)$$

$$x = 1 \text{ or } x = 3 \text{ or } x = 5 \quad \blacksquare$$

$$\text{solve}\left(\frac{x^2-1}{x-1} = 0, x\right)$$

$$x = -1 \text{ (Le domaine du résultat peut être plus grand que le domaine de l'entrée.)} \quad \blacksquare$$

$$\text{solve}\left(\frac{x^2-5}{x-\sqrt{5}} = 0, x\right)$$

$$x = -\sqrt{5} \text{ or } x = \sqrt{5} \quad \blacksquare$$

$$\text{factor}(x^2 - 5)$$

$$x^2 - 5 \quad \blacksquare$$

$$\text{solve}(e^{x^2-5} = e^{-4x}, x)$$

$$x = -5 \text{ or } x = 1 \quad \blacksquare$$

$$\text{cSolve}(z^2 = (\text{conjugate}(z))^2, z)$$

$$z = c7 \cdot i \text{ or } z = c8 \quad \blacksquare$$

$$\text{solve}(2 \cdot x^3 - 3 \cdot x^2 - 1 = 0, x)$$

$$x = 1,67765 \quad \blacksquare$$



## Xcas (0.9.9)

```
solve(sqrt(x-3)*(x-1)*(x-5))
```

$[x = 1, x = 3, x = 5]$  ■

```
solve((x**2-1)/(x-1))
```

$[x = -1, x = 1]$  ■

```
solve((x**2-5)/(x-sqrt(5)))
```

$[x = -\sqrt{5}, x = \sqrt{5}]$  ■

```
factor(x**2-5)
```

$(x - \sqrt{5})(x + \sqrt{5})$  ■

```
solve(exp(x**2-5)=exp(-4*x))
```

Unable to isolate x ■

```
cSolve(x**2=(conj(x))**2)
```

$[x^i]$  ■

```
solve(2*x**3-3*x**2-1)
```

Algebraic extension not implemented yet, [(deux complexes approchés), 1,6776506988] ■

