LaTeX-Equation 2 CAS

Examples

1 The Jacobi Polynomial

Let us take a look to the Jacobi polynomial (DLMF-Link). We want to translate the general expression (section 1.1) to a CAS (section 1.3) representation. For instance we have the following term:

$$P_n^{(\alpha,\beta)}(\cos(a\Theta)) \tag{1}$$

1.1 Generic LaTeX

```
P_n^{(\alpha,\beta)}(\cos(a\Theta))
```

1.2 Semantic LaTeX

```
\JacobiP{\alpha}{\beta}{n}@{\cos@{a\Theta}}
```

1.3 Computer Algebra Systems (CAS)

From now on, be aware of the spaces between the symbols. For instance, a space between a and Θ is needed to show a and Θ are different variables. Otherwise Maple (for example) would think $aTheta$ is one new variable.

1.3.1 Maple

```
JacobiP(n,alpha,beta,cos(a Theta))
```

1.3.2 Mathematica

```
JacobiP[n,\[Alpha],\[Beta],Cos[a \[Theta]]]
```