Maxima Engine Test Document

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```
library(knitr)

source("maxima.R")
knit_engines$set(maxima = maxima)
```

```
f(x) := (x^2 + exp(x^2))$
'f(2) = f(2);
jacobian(
    [alpha /
        (alpha +
        beta),
        1 / sqrt(alpha + beta)],
        [alpha, beta]);
J = determinant(%);
```

$$f(x) := x^2 + exp(x^2)$$

$$f\left(2\right) = e^4 + 4$$

$$\begin{pmatrix} \frac{1}{\beta+\alpha} - \frac{\alpha}{(\beta+\alpha)^2} & -\frac{\alpha}{(\beta+\alpha)^2} \\ -\frac{1}{2\,(\beta+\alpha)^{\frac{3}{2}}} & -\frac{1}{2\,(\beta+\alpha)^{\frac{3}{2}}} \end{pmatrix}$$

$$J = -\frac{\frac{1}{\beta+\alpha} - \frac{\alpha}{(\beta+\alpha)^2}}{2\,(\beta+\alpha)^{\frac{3}{2}}} - \frac{\alpha}{2\,(\beta+\alpha)^{\frac{7}{2}}}$$

which can be simplified to

```
factor(%);
```