```
Loading image file: D:\Program Files\Reduce\bin\..\lib\psl\red\reduce.img
Reduce (Free PSL version, revision 5424), 07-Oct-2020 ...

1: in "D:\SourceCode\reduce-algebra-code\packages\tmprint\symbols_and_functions.tst";
% Test typeset display of special symbols and standard functions.
% Output from Run-REDUCE (https://fjwright.github.io/Run-REDUCE/) is
% provided as "symbols_and_functions.pdf".  Output using other GUIs
% should be comparable but may not be identical.

% $Id:$

% Symbolic constants:
{infinity, pi, Euler_gamma, golden_ratio};
```

$$\left\{\infty, \pi, \gamma, \frac{\sqrt{5}+1}{2}\right\}$$

```
% Greek letters:
{alpha, beta, gamma, delta, epsilon, zeta, eta, theta, iota, kappa, lambda, mu};
```

$$\{\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu\}$$

```
{nu, xi, omicron, pi, rho, sigma, tau, upsilon, phi, chi, psi, omega};
```

$$\{\nu, \xi, o, \pi, \rho, \sigma, \tau, \upsilon, \phi, \chi, \psi, \omega\}$$

```
{!Alpha, !Beta, !Gamma, !Delta, !Epsilon, !Zeta, !Eta, !Theta, !Iota, !Kappa, !Lambda, !Mu};
```

$$\{\mathrm{A}, \mathrm{B}, \Gamma, \Delta, \mathrm{E}, \mathrm{Z}, \mathrm{H}, \Theta, \mathrm{I}, \mathrm{K}, \Lambda, \mathrm{M}\}$$

```
{!Nu, !Xi, !Omicron, !Pi, !Rho, !Sigma, !Tau, !Upsilon, !Phi, !Chi, !Psi, !Omega};
```

$$\{\mathrm{N}, \Xi, \mathrm{O}, \Pi, \mathrm{P}, \Sigma, \mathrm{T}, \Upsilon, \Phi, \mathrm{X}, \Psi, \Omega\}$$

```
% Elementary transcendental functions:
{exp(x), log(x), log10(x), logb(x, b), sqrt(x), factorial(x)};
```

$$\left\{e^{x}, \log\left(x\right), \log_{10}\left(x\right), \log_{b}\left(x\right), \sqrt{x}, x!\right\}$$

```
{sin(x), cos(x), tan(x), csc(x), sec(x), cot(x)};
```

$$\{\sin\left(x\right), \cos\left(x\right), \tan\left(x\right), \csc\left(x\right), \sec\left(x\right), \cot\left(x\right)\}$$

```
{sinh(x), cosh(x), tanh(x), csch(x), sech(x), coth(x)};
```

$$\{\sinh\left(x\right), \cosh\left(x\right), \tanh\left(x\right), \operatorname{csch}\left(x\right), \operatorname{sech}\left(x\right), \coth\left(x\right)\}$$

```
{asin(x), acos(x), atan(x), atan2(y, x), acsc(x), asec(x), acot(x)};
```

$$\{\arcsin\left(x\right), \arccos\left(x\right), \arctan\left(x\right), \operatorname{arctan}_{2}\left(y, x\right), \operatorname{arccsc}\left(x\right), \operatorname{arcsec}\left(x\right), \operatorname{arccot}\left(x\right)\}$$

```
{asinh(x), acosh(x), atanh(x), acsch(x), asech(x), acoth(x)};
```

$$\{\operatorname{arcsinh}\left(x\right), \operatorname{arccosh}\left(x\right), \operatorname{arctanh}\left(x\right), \operatorname{arccsch}\left(x\right), \operatorname{arcsech}\left(x\right), \operatorname{arccoth}\left(x\right)\}$$

```
% Complex value functions:
{repart z, impart z, conj z, conj(a+i*b)};
```

$$\{\Re(z), \Im(z), -\Im(z)\ i + \Re(z), -\Im(a)\ i - \Im(b) + \Re(a) - \Re(b)\ i\}$$

```
let conj z => z_bar;

 {conj z, conj z_bar, z*z_bar = abs(z)^2};
```

$$\left\{\overline{z}, z, z\,\overline{z} = |z|^2\right\}$$

```
% Gamma, Beta and related functions:
{Gamma(z), Beta(a, b), psi(z), polygamma(n, z), iGamma(a, z), m_Gamma(a, z), iBeta(a, b, x),
   dilog(z), Pochhammer(a, n), binomial(m, n), zeta(s), Lambert_W(x)};
```

$$\left\{\Gamma(z), \frac{\Gamma(a)\ \Gamma(b)}{\Gamma(a+b)}, \psi(z), \psi^{(n)}(z), P(a,z), \gamma(a,z), I_x(a,b), \mathrm{Li}_2(z), (a)_n, \binom{m}{n}, \zeta(s), \omega(x)\right\}$$

```
load_package specfn;
```

```
% Integral functions:
{Ei(x), li(x), Si(z), Ci(z), Shi(z), Chi(z), erf(z), erfc(z), Fresnel_S(z), Fresnel_C(z)};
```

$$\{\mathrm{Ei}(x), \mathrm{Ei}(\log(x)), \mathrm{Si}(z), \mathrm{Ci}(z), \mathrm{Shi}(z), \mathrm{Chi}(z), \mathrm{erf}(z), -\mathrm{erf}(z)+1, \mathrm{S}(z), \mathrm{C}(z)\}$$

```
% Airy, Bessel and related functions:
{Airy_Ai(z), Airy_Bi(z), Airy_AiPrime(z), Airy_BiPrime(z), BesselJ(nu, z), BesselY(nu, z),
   BesselI(nu, z), BesselK(nu, z), Hankel1(nu, z), Hankel2(nu, z)};
```

$$\left\{\mathrm{Ai}(z), \mathrm{Bi}(z), \mathrm{Ai}'(z), \mathrm{Bi}'(z), J_\nu(z), Y_\nu(z), I_\nu(z), K_\nu(z), H_\nu^{(1)}(z), H_\nu^{(2)}(z)\right\}$$

```
% Struve, Lommel, Kummer, Whittaker and spherical harmonic functions:
{StruveH(nu, z), StruveL(nu, z), Lommel1(mu, nu, z), Lommel2(mu, nu, z),
   KummerM(a, b, z), KummerU(a, b, z), WhittakerM(kappa, mu, z), WhittakerW(kappa, mu, z),
   SphericalHarmonicY(3, 2, theta, phi), SolidHarmonicY(3, 2, x, y, z, r2)};
```

$$\left\{\mathbf{H}_\nu(z), \mathbf{L}_\nu(z), s_{\mu,\nu}(z), S_{\mu,\nu}(z), M(a,b,z), U(a,b,z), \frac{z^{\frac{2\mu+1}{2}}\ M\left(\frac{-2\kappa+2\mu+1}{2}, 2\mu+1, z\right)}{e^{\frac{z}{2}}},\right.$$

$$\frac{z^{\frac{2\mu+1}{2}}\ U\left(\frac{-2\kappa+2\mu+1}{2}, 2\mu+1, z\right)}{e^{\frac{z}{2}}},$$

$$\left.\frac{\sqrt{105}\ \cos(\theta)\ \sin(\theta)^2\ \left(\cos(\phi)^2 + 2\ \cos(\phi)\ \sin(\phi)\ i - \sin(\phi)^2\right)}{4\sqrt{\pi}\sqrt{2}}, \frac{\sqrt{105}\,z\ \left(2\,i\,x\,y + x^2 - y^2\right)}{4\sqrt{\pi}\sqrt{2}}\right\}$$

```
% Classical orthogonal polynomials:
{JacobiP(n, alpha, beta, x), GegenbauerP(n, lambda, x), ChebyshevT(n, x), ChebyshevU(n, x),
```

```
   LegendreP(n, x), LegendreP(n, m, x), LaguerreP(n, x), LaguerreP(n, alpha, x), HermiteP(n, x)};
```

$$\left\{P_n^{(\alpha,\beta)}(x), C_n^{(\lambda)}(x), T_n(x), U_n(x), P_n(x), P_n^{(m)}(x), L_n(x), L_n^{(\alpha)}(x), H_n(x)\right\}$$

```
% Other Polynomials and Numbers:
{BernoulliP(n, x), EulerP(n, x), FibonacciP(n, x)};
```

$$\{B_n(x), E_n(x), F_n(x)\}$$

```
{Bernoulli(n), Euler(n), Fibonacci(n), Stirling1(n, m), Stirling2(n, m), Motzkin(n)};
```

$$\{B_n, E_n, F_n, \mathrm{s}_n^m, \mathrm{S}_n^m, M_n\}$$

```
;

end;
```

2: