> **restart;**

// create expressions for r01, r12 and rt

r01 := (z1^2+rho^2)^.5;

$$r01 := (z1^2 + \rho^2)^{.5}$$

> **r12 := (z^2+rho^2)^.5;**

$$r12 := (z^2 + \rho^2)^{.5}$$

> **rt := r01+r12;**

$$rt := (z1^2 + \rho^2)^{.5} + (z^2 + \rho^2)^{.5}$$

// create an equation by setting rt to a specific value rt1

eqn := rt1 = rt;

$$eqn := rt1 = (z1^2 + \rho^2)^{.5} + (z^2 + \rho^2)^{.5}$$

// There are two solutions as shown, note that you must put square brackets around the solve call, otherwise solutions like sol[1] not accessible

sols := [solve(eqn,rho)];

$$sols := \left[\frac{1}{2}\frac{\sqrt{-2\,z1^2\,rt1^2 + rt1^4 + z^4 - 2\,z^2\,rt1^2 - 2\,z^2\,z1^2 + z1^4}}{rt1}, -\frac{1}{2}\frac{\sqrt{-2\,z1^2\,rt1^2 + rt1^4 + z^4 - 2\,z^2\,rt1^2 - 2\,z^2\,z1^2 + z1^4}}{rt1}\right]$$

// Now install this solution for rho back into r01, so we then get r01(z,z1,rt)

r01_1 :=normal(eval(r01,rho=sols[1]));

$$r01_1 := .5000000000\left(\frac{2\,z1^2\,rt1^2 + rt1^4 + z^4 - 2\,z^2\,rt1^2 - 2\,z^2\,z1^2 + z1^4}{rt1^2}\right)^{.5}$$

> **joe := simplify(rtl*r01_1/.5,power);**

$$joe := 1.000000000\,rtl\left(\frac{2\,z1^2\,rt1^2 + rt1^4 + z^4 - 2\,z^2\,rt1^2 - 2\,z^2\,z1^2 + z1^4}{rt1^2}\right)^{.5000000000}$$

> **bob := d*(f/d^2)^.5;**

$$bob := d\left(\frac{f}{d^2}\right)^{.5}$$

> **simplify(%);**

$$\sqrt{f}$$

> **normal(%);**

$$d\sqrt{\frac{f+g}{d^2}}$$

> **factor(%);**

$$d\sqrt{\frac{f+g}{d^2}}$$

> **combine(%);**

$$d\sqrt{\frac{f+g}{d^2}}$$

> **assume(d>0);**

>