

[> restart;

> eqs:=(c1*s+c2)*(s^2-2*s+2)+(c3*s+c4)*(s^2+1)=s;

$$eqs := (c1\ s + c2)\ (s^2 - 2\ s + 2) + (c3\ s + c4)\ (s^2 + 1) = s$$

> e1:=subs(s=0,eqs);

$$e1 := 2\ c2 + c4 = 0$$

> e2:=subs(s=0,diff(eqs,s));

$$e2 := 2\ c1 - 2\ c2 + c3 = 1$$

> e3:=subs(s=0,diff(eqs,s\$2)/2);

$$e3 := -2\ c1 + c2 + c4 = 0$$

> e4:=subs(s=0,diff(eqs,s\$3)/3!);

$$e4 := c1 + c3 = 0$$

> solve({e1,e2,e3,e4},{c1,c2,c3,c4});

$$\left\{ c3 = \frac{-1}{5}, c2 = \frac{-2}{5}, c1 = \frac{1}{5}, c4 = \frac{4}{5} \right\}$$

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