

```

> read `npolyio.txt`;
read `npolyops.txt`;
read `npolysubs.txt`;
read `A22-rules.txt`;
read `misc.txt`;

> w := exp(Pi*I/3);
w0 := exp(Pi*I/6);

```

$$w := \frac{1}{2} + \frac{1}{2} I\sqrt{3}$$

$$w0 := \frac{1}{2} \sqrt{3} + \frac{1}{2} I$$

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```

> h0 := parsePoly(h[0]); h1 := parsePoly(h[1]);
e0 := parsePoly(e[0]); e1 := parsePoly(e[1]);
f0 := parsePoly(f[0]); f1 := parsePoly(f[1]);

```

$$h0 := [[1, [h_0]]]$$

$$h1 := [[1, [h_1]]]$$

$$e0 := [[1, [e_0]]]$$

$$e1 := [[1, [e_1]]]$$

$$f0 := [[1, [f_0]]]$$

$$f1 := [[1, [f_1]]]$$

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```

> H0 := evalc(rewritePoly(h0, Risom));
H1 := evalc(rewritePoly(h1, Risom));
E0 := evalc(rewritePoly(e0, Risom));
E1 := evalc(rewritePoly(e1, Risom));
F0 := evalc(rewritePoly(f0, Risom));
F1 := evalc(rewritePoly(f1, Risom));

```

$$H0 := \left[\left[\frac{2}{3}, [c] \right], [6 - 2I\sqrt{3}, [X_0]] \right]$$

$$H1 := \left[\left[\frac{1}{6}, [c] \right], [-3 + I\sqrt{3}, [X_0]] \right]$$

$$E0 := \left[[-\sqrt{2}\sqrt{3} + I\sqrt{2}, [X_1]], \left[\frac{2}{3}\sqrt{2}\sqrt{3}, [a_1] \right] \right]$$

$$E1 := \left[[\sqrt{3} - I, [X_1]], \left[\frac{1}{3}\sqrt{3}, [a_1] \right] \right]$$

$$F0 := \left[[\sqrt{2}\sqrt{3} - I\sqrt{2}, [X_{-1}]], \left[\frac{2}{3}\sqrt{2}\sqrt{3}, [a_{-1}] \right] \right]$$

$$F1 := \left[[-\sqrt{3} + I, [X_{-1}]], \left[\frac{1}{3}\sqrt{3}, [a_{-1}] \right] \right]$$

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```

### Checking: [h_i, h_j] = 0 for i, j = 0, 1.
> seq(seq(
  writePoly(evalcPoly(rewritePoly(b(H||i, H||j), Rvop))),
  i=0..1), j=0..1);

```

0, 0, 0, 0

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Checking: $[h_p e_j] - A_{ij} e_j = 0$ for $i, j = 0, 1$.

```
> seq(seq(writePoly(evalcPoly(rewritePoly(
  addPoly(b(H||i, E||j), sMulPoly(-A22[i,j], E||j)),
  Rvop))), i=0..1), j=0..1);
0, 0, 0, 0
```

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Checking: $[h_p f_j] + A_{ij} f_j = 0$ for $i, j = 0, 1$.

```
> seq(seq(writePoly(evalcPoly(rewritePoly(
  addPoly(b(H||i, F||j), sMulPoly(A22[i,j], F||j)),
  Rvop))), i=0..1), j=0..1);
0, 0, 0, 0
```

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Checking: $[e_p f_j] - \delta_{ij} h_j = 0$ for $i, j = 0, 1$.

```
> seq(seq(writePoly(evalcPoly(rewritePoly(
  addPoly(b(E||i, F||j), sMulPoly(-delta(i,j), H||i)),
  Rvop))), i=0..1), j=0..1);
0, 0, 0, 0
```

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Checking: $(ad e_i)^{-A_{ij} + 1} e_j = 0$ for $i, j = 0, 1$.

```
> i, j := 0, 1:
  writePoly(evalcPoly(rewritePoly(adpow(
    -A22[i,j]+1, E||i, E||j), Rvop)));
i, j := 1, 0:
  writePoly(evalcPoly(rewritePoly(adpow(
    -A22[i,j]+1, E||i, E||j), Rvop)));
0
0
```

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Checking: $(ad f_i)^{-A_{ij} + 1} f_j = 0$ for $i, j = 0, 1$.

```
> i, j := 0, 1:
  writePoly(evalcPoly(rewritePoly(adpow(
    -A22[i,j]+1, F||i, F||j), Rvop)));
i, j := 1, 0:
  writePoly(evalcPoly(rewritePoly(adpow(
    -A22[i,j]+1, F||i, F||j), Rvop)));
0
0
```

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