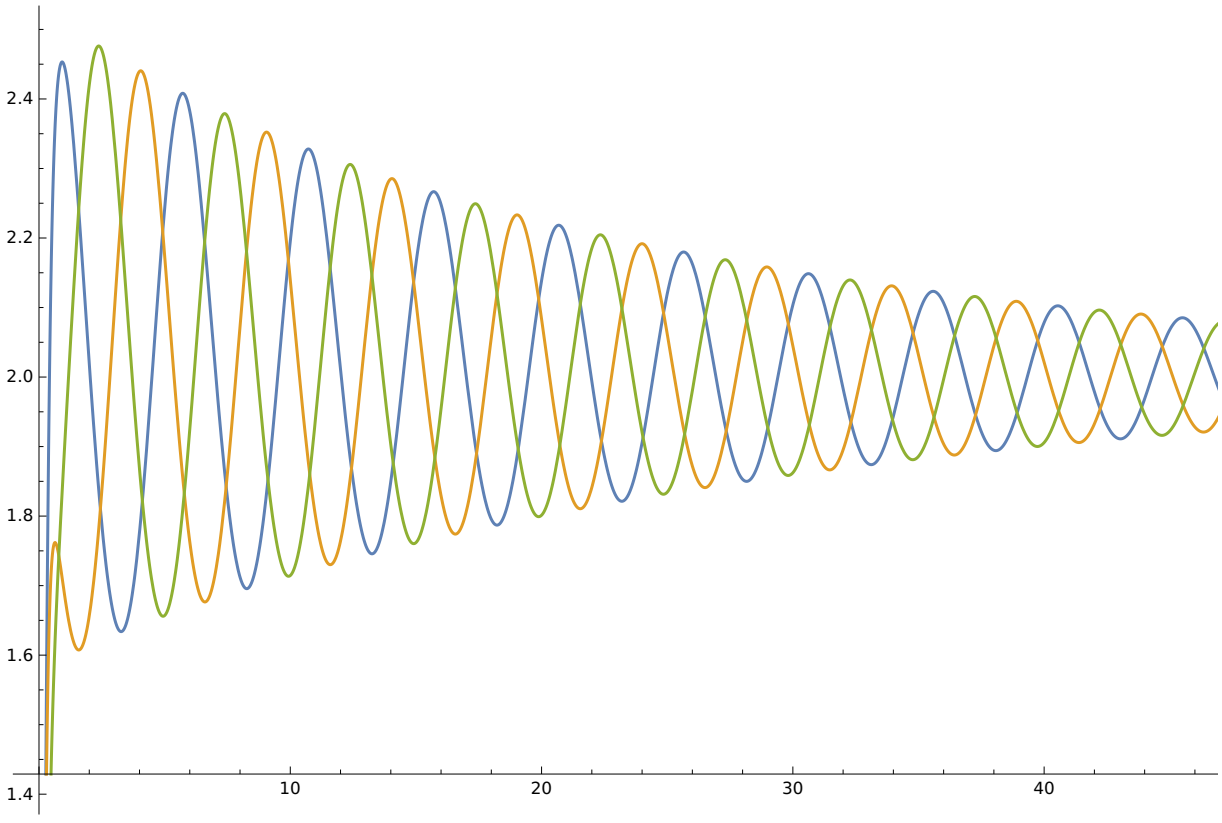
```
Sys := {
  L'[t] == 10 (mL[t] - L[t]),
  Cl'[t] == 10 (mC[t] - Cl[t]),
  T'[t] == 10 (mT[t] - T[t]),
  mL'[t] == 10/(Cl[t]^2 + 1) - mL[t],
  mC'[t] == 10/(T[t]^2 + 1) - mC[t],
  mT'[t] == 10/(L[t]^2 + 1) - mT[t],
  L[0] == 1, Cl[0] == 0, T[0] == 0, mL[0] == mC[0] == mT[0] == 0}
```

```
Sys
```

$$\left\{L'[t] == 10\left(-L[t] + mL[t]\right),\ Cl'[t] == 10\left(-Cl[t] + mC[t]\right),\right.$$
$$T'[t] == 10\left(mT[t] - T[t]\right),\ mL'[t] == \frac{10}{1 + Cl[t]^2} - mL[t],\ mC'[t] == -mC[t] + \frac{10}{1 + T[t]^2},$$
$$\left.mT'[t] == \frac{10}{1 + L[t]^2} - mT[t],\ L[0] == 1,\ Cl[0] == 0,\ T[0] == 0,\ mL[0] == mC[0] == mT[0] == 0\right\}$$

```
s := NDSolve[Sys,
  {Cl[t], L[t], mC[t], mL[t], mT[t], T[t], uC[t], uL[t], uT[t]}, {t, 0, 100, 0.0001}]
```

```
Plot[Evaluate[{Cl[t], L[t], T[t]} /. s], {t, 0, 50}]
```



```
Sys := {
  L'[t] == 10 (mL[t] - L[t]),
  Cl'[t] == 10 (mC[t] - Cl[t]),
  T'[t] == 10 (mT [t] - T[t]),
  mL'[t] == 10 uC[t] - mL[t],
  mC'[t] == 10 uT[t] - mC[t],
  mT'[t] == 10 uL[t] - mT[t],
  uL'[t] == -20 L[t] uL[t]^2 (mL[t] - L[t]),
  uC'[t] == -20 Cl[t] uC[t]^2 (mC[t] - Cl[t]),
  uT'[t] == -20 T[t] uT[t]^2 (mT[t] - T[t]),
  L[0] == 1,
  Cl[0] == 0,
  T[0] == 0,
  mL[0] == mC[0] == mT[0] == 0,
  uL[0] == 1/2,
  uC[0] == 1,
  uT[0] == 1
 }
```

```
f[{L_, Cl_, T_, mL_, mC_, mT_, uL_, uC_, uT_}] := {
  10 (mL - L), 10 (mC - Cl), 10 (mT - T),
  10 uC - mL, 10 uT - mC, 10 uL - mT,
   -20 L * uL^2 * (mL - L), -20 Cl uC^2 (mC - Cl), -20 T uT^2 (mT - T)}
```

```
f[{L, Cl, T, mL, mC, mT, uL, uC, uT}]
```

$$\{10(-L+mL),\ 10(-Cl+mC),\ 10(mT-T),\ -mL+10\,uC,\ -mC+10\,uT,\ -mT+10\,uL,\ -20\,L(-L+mL)\,uL^2,\ -20\,Cl(-Cl+mC)\,uC^2,\ -20(mT-T)\,T\,uT^2\}$$

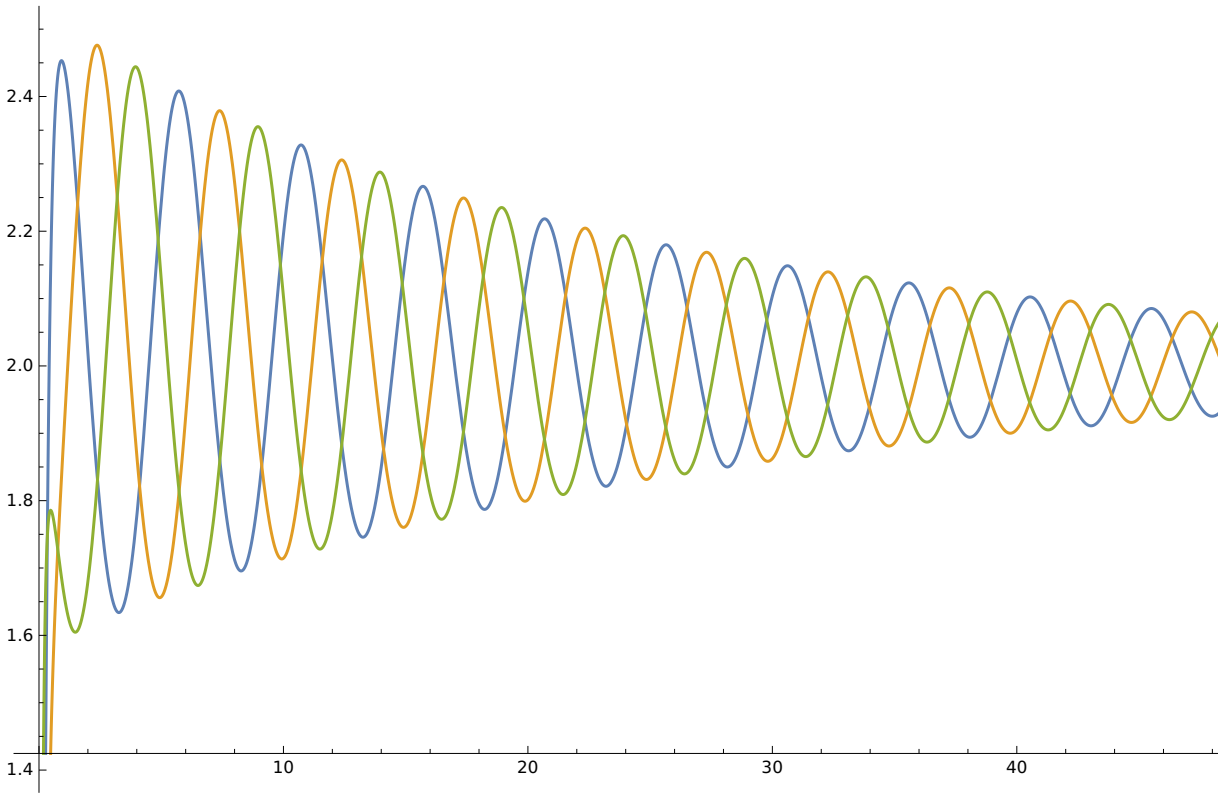
```
Sys := {y'[t] == f[y[t]], y[0] == {1, 0, 0, 0, 0, 0, 1/2, 1, 1}}
Sys
```

$$\{y'[t] == f[y[t]],\ y[0] == \{1, 0, 0, 0, 0, 0, \frac{1}{2}, 1, 1\}\}$$

```
s := NDSolve[Sys, {y[t]}, {t, 0, 100, 0.0001}]
s
```

$$\{\{y[t] \to \text{InterpolatingFunction}[\ \text{Domain: } \{\{0., 100.\}\}\ \text{Output dimensions: } \{9\}\ ][t]\}\}$$

```
Plot[Evaluate[Table[Indexed[y[t], i] /. s, {i, 2, 4}], {t, 0, 50}]]
```




```
Resolve[Exists[{x}, x^2 + b x + c == 0], Reals]
```

$-b^2 + 4\,c \leq 0$

```
g[x_, y_, z_] := x^2 - 2 y + z^4
f[x_, y_, z_] := {2 x, 2 y, 3 z}
```

```
Lie[f_, g_, xs_] := ∇xs g .f
```

```
Lie[f[x, y, z], g[x, y, z], {x, y, z}]
```

$4\,x^2 - 4\,y + 12\,z^4$

```
xs := {L, Cl, T, mL, mC, mT, uL, uC, uT}
```

```
lin := α1 L + α2 Cl + α3 T + α4 mL + α5 mC + α6 mT + α7 uL + α8 uC + α9 uT
```

```
quad := (α1 L + α2 Cl + α3 T + α4 mL + α5 mC + α6 mT + α7 uL + α8 uC + α9 uT)
  (β1 L + β2 Cl + β3 T + β4 mL + β5 mC + β6 mT + β7 uL + β8 uC + β9 uT)
```

```
Resolve[ForAll[{L, Cl, T, mL, mC, mT, uL, uC, uT}, Lie[f[xs], lin, xs] == 0]]
```

$\alpha_9 == 0 \&\& \alpha_8 == 0 \&\& \alpha_7 == 0 \&\& \alpha_6 == 0 \&\& \alpha_5 == 0 \&\& \alpha_4 == 0 \&\&$
$-10\,\alpha_3 + \alpha_6 == 0 \&\& \alpha_3 == 0 \&\& -10\,\alpha_2 + \alpha_5 == 0 \&\& \alpha_2 == 0 \&\& -10\,\alpha_1 + \alpha_4 == 0 \&\& \alpha_1 == 0$

```
Reduce[%22]
```

$\alpha_9 == 0 \&\& \alpha_8 == 0 \&\& \alpha_7 == 0 \&\& \alpha_6 == 0 \&\& \alpha_3 == 0 \&\& \alpha_5 == 0 \&\& \alpha_2 == 0 \&\& \alpha_4 == 0 \&\& \alpha_1 == 0$

```
Resolve[ForAll[{L, Cl, T, mL, mC, mT, uL, uC, uT}, Lie[f[xs], quad, xs] == 0]]
```

$$
\begin{aligned}
&(\alpha_9\,\beta_8 + \alpha_8\,\beta_9 == 0 \,\&\&\, \alpha_9\,\beta_7 + \alpha_7\,\beta_9 == 0 \,\&\&\, \alpha_9\,\beta_6 + \alpha_6\,\beta_9 == 0 \,\&\&\, \alpha_9\,\beta_5 + \alpha_5\,\beta_9 == 0 \,\&\&\\
&\quad \alpha_7\,\beta_5 + \alpha_9\,\beta_6 + \alpha_5\,\beta_7 + \alpha_6\,\beta_9 == 0 \,\&\&\, \alpha_9\,\beta_4 + \alpha_4\,\beta_9 == 0 \,\&\&\, \alpha_9\,\beta_4 + \alpha_8\,\beta_5 + \alpha_5\,\beta_8 + \alpha_4\,\beta_9 == 0 \,\&\&\\
&\quad -10\,\alpha_9\,\beta_3 - 10\,\alpha_6\,\beta_5 - 10\,\alpha_5\,\beta_6 + \alpha_9\,\beta_6 - 10\,\alpha_3\,\beta_9 + \alpha_6\,\beta_9 == 0 \,\&\&\\
&\quad -\alpha_9\,\beta_3 + \alpha_9\,\beta_6 - \alpha_3\,\beta_9 + \alpha_6\,\beta_9 == 0 \,\&\&\, \alpha_9\,\beta_3 + \alpha_3\,\beta_9 == 0 \,\&\&\\
&\quad -\alpha_5\,\beta_3 + \alpha_9\,\beta_3 - \alpha_3\,\beta_5 + \alpha_3\,\beta_9 == 0 \,\&\&\, -10\,\alpha_9\,\beta_2 - 20\,\alpha_5\,\beta_5 + \alpha_9\,\beta_5 - 10\,\alpha_2\,\beta_9 + \alpha_5\,\beta_9 == 0 \,\&\&\\
&\quad \alpha_9\,\beta_2 + \alpha_2\,\beta_9 == 0 \,\&\&\, -\alpha_5\,\beta_2 + \alpha_9\,\beta_2 - \alpha_2\,\beta_5 + \alpha_2\,\beta_9 == 0 \,\&\&\\
&\quad -10\,\alpha_9\,\beta_1 - 10\,\alpha_5\,\beta_4 + \alpha_9\,\beta_4 - 10\,\alpha_4\,\beta_5 - 10\,\alpha_1\,\beta_9 + \alpha_4\,\beta_9 == 0 \,\&\&\, \alpha_9\,\beta_1 + \alpha_1\,\beta_9 == 0 \,\&\&\\
&\quad -\alpha_5\,\beta_1 + \alpha_9\,\beta_1 - \alpha_1\,\beta_5 + \alpha_1\,\beta_9 == 0 \,\&\&\, \beta_8 == 0 \,\&\&\, \beta_7 == 0 \,\&\&\, \beta_2 == 0 \,\&\&\, \beta_1 == 0 \,\&\&\\
&\quad \alpha_8\,\beta_7 + \alpha_7\,\beta_8 == 0 \,\&\&\, \alpha_8\,\beta_6 + \alpha_6\,\beta_8 == 0 \,\&\&\, \alpha_7\,\beta_6 + \alpha_6\,\beta_7 == 0 \,\&\&\, \alpha_8\,\beta_5 + \alpha_5\,\beta_8 == 0 \,\&\&\\
&\quad \alpha_7\,\beta_5 + \alpha_5\,\beta_7 == 0 \,\&\&\, \alpha_8\,\beta_4 + \alpha_4\,\beta_8 == 0 \,\&\&\, \alpha_7\,\beta_4 + \alpha_4\,\beta_7 == 0 \,\&\&\, \alpha_7\,\beta_4 + \alpha_8\,\beta_6 + \alpha_4\,\beta_7 + \alpha_6\,\beta_8 == 0 \,\&\&\\
&\quad -10\,\alpha_8\,\beta_3 - 10\,\alpha_6\,\beta_4 - 10\,\alpha_4\,\beta_6 + \alpha_8\,\beta_6 - 10\,\alpha_3\,\beta_8 + \alpha_6\,\beta_8 == 0 \,\&\&\, \alpha_8\,\beta_3 + \alpha_3\,\beta_8 == 0 \,\&\&\\
&\quad -10\,\alpha_7\,\beta_3 - 20\,\alpha_6\,\beta_6 + \alpha_7\,\beta_6 - 10\,\alpha_3\,\beta_7 + \alpha_6\,\beta_7 == 0 \,\&\&\, \alpha_7\,\beta_3 + \alpha_3\,\beta_7 == 0 \,\&\&\\
&\quad -5\,\alpha_6\,\beta_3 - 5\,\alpha_3\,\beta_6 + \alpha_6\,\beta_6 == 0 \,\&\&\, -\alpha_6\,\beta_3 + \alpha_7\,\beta_3 - \alpha_3\,\beta_6 + \alpha_3\,\beta_7 == 0 \,\&\&\\
&\quad -\alpha_4\,\beta_3 + \alpha_8\,\beta_3 - \alpha_3\,\beta_4 + \alpha_3\,\beta_8 == 0 \,\&\&\, -20\,\alpha_3\,\beta_3 + 11\,\alpha_6\,\beta_3 + 11\,\alpha_3\,\beta_6 == 0 \,\&\&\\
&\quad \beta_9 == 0 \,\&\&\, \beta_3 == 0 \,\&\&\, -10\,\alpha_8\,\beta_2 - 10\,\alpha_5\,\beta_4 - 10\,\alpha_4\,\beta_5 + \alpha_8\,\beta_5 - 10\,\alpha_2\,\beta_8 + \alpha_5\,\beta_8 == 0 \,\&\&\\
&\quad -\alpha_8\,\beta_2 + \alpha_8\,\beta_5 - \alpha_2\,\beta_8 + \alpha_5\,\beta_8 == 0 \,\&\&\, \alpha_8\,\beta_2 + \alpha_2\,\beta_8 == 0 \,\&\&\\
&\quad -10\,\alpha_7\,\beta_2 - 10\,\alpha_6\,\beta_5 + \alpha_7\,\beta_5 - 10\,\alpha_5\,\beta_6 - 10\,\alpha_2\,\beta_7 + \alpha_5\,\beta_7 == 0 \,\&\&\\
&\quad \alpha_7\,\beta_2 + \alpha_2\,\beta_7 == 0 \,\&\&\, -5\,\alpha_6\,\beta_2 - 5\,\alpha_5\,\beta_3 - 5\,\alpha_3\,\beta_5 + \alpha_6\,\beta_5 - 5\,\alpha_2\,\beta_6 + \alpha_5\,\beta_6 == 0 \,\&\&\\
&\quad -\alpha_6\,\beta_2 + \alpha_7\,\beta_2 - \alpha_2\,\beta_6 + \alpha_2\,\beta_7 == 0 \,\&\&\, -5\,\alpha_5\,\beta_2 - 5\,\alpha_2\,\beta_5 + \alpha_5\,\beta_5 == 0 \,\&\&\\
&\quad -\alpha_4\,\beta_2 + \alpha_8\,\beta_2 - \alpha_2\,\beta_4 + \alpha_2\,\beta_8 == 0 \,\&\&\, -10\,\alpha_3\,\beta_2 - 10\,\alpha_2\,\beta_3 + 11\,\alpha_5\,\beta_3 + 11\,\alpha_3\,\beta_5 == 0 \,\&\&\\
&\quad -10\,\alpha_3\,\beta_2 + 11\,\alpha_6\,\beta_2 - 10\,\alpha_2\,\beta_3 + 11\,\alpha_2\,\beta_6 == 0 \,\&\&\, \alpha_3\,\beta_2 + \alpha_2\,\beta_3 == 0 \,\&\&\\
&\quad -20\,\alpha_2\,\beta_2 + 11\,\alpha_5\,\beta_2 + 11\,\alpha_2\,\beta_5 == 0 \,\&\&\, -10\,\alpha_8\,\beta_1 - 20\,\alpha_4\,\beta_4 + \alpha_8\,\beta_4 - 10\,\alpha_1\,\beta_8 + \alpha_4\,\beta_8 == 0 \,\&\&\\
&\quad \alpha_8\,\beta_1 + \alpha_1\,\beta_8 == 0 \,\&\&\, -10\,\alpha_7\,\beta_1 - 10\,\alpha_6\,\beta_4 + \alpha_7\,\beta_4 - 10\,\alpha_4\,\beta_6 - 10\,\alpha_1\,\beta_7 + \alpha_4\,\beta_7 == 0 \,\&\&\\
&\quad -\alpha_7\,\beta_1 + \alpha_7\,\beta_4 - \alpha_1\,\beta_7 + \alpha_4\,\beta_7 == 0 \,\&\&\, \alpha_7\,\beta_1 + \alpha_1\,\beta_7 == 0 \,\&\&\\
&\quad -5\,\alpha_6\,\beta_1 - 5\,\alpha_4\,\beta_3 - 5\,\alpha_3\,\beta_4 + \alpha_6\,\beta_4 - 5\,\alpha_1\,\beta_6 + \alpha_4\,\beta_6 == 0 \,\&\&\, -\alpha_6\,\beta_1 + \alpha_7\,\beta_1 - \alpha_1\,\beta_6 + \alpha_1\,\beta_7 == 0 \,\&\&\\
&\quad -5\,\alpha_5\,\beta_1 - 5\,\alpha_4\,\beta_2 - 5\,\alpha_2\,\beta_4 + \alpha_5\,\beta_4 - 5\,\alpha_1\,\beta_5 + \alpha_4\,\beta_5 == 0 \,\&\&\, -5\,\alpha_4\,\beta_1 - 5\,\alpha_1\,\beta_4 + \alpha_4\,\beta_4 == 0 \,\&\&\\
&\quad -\alpha_4\,\beta_1 + \alpha_8\,\beta_1 - \alpha_1\,\beta_4 + \alpha_1\,\beta_8 == 0 \,\&\&\, -10\,\alpha_3\,\beta_1 - 10\,\alpha_1\,\beta_3 + 11\,\alpha_4\,\beta_3 + 11\,\alpha_3\,\beta_4 == 0 \,\&\&\\
&\quad -10\,\alpha_3\,\beta_1 + 11\,\alpha_6\,\beta_1 - 10\,\alpha_1\,\beta_3 + 11\,\alpha_1\,\beta_6 == 0 \,\&\&\\
&\quad \alpha_3\,\beta_1 + \alpha_1\,\beta_3 == 0 \,\&\&\, -10\,\alpha_2\,\beta_1 - 10\,\alpha_1\,\beta_2 + 11\,\alpha_4\,\beta_2 + 11\,\alpha_2\,\beta_4 == 0 \,\&\&\\
&\quad -10\,\alpha_2\,\beta_1 + 11\,\alpha_5\,\beta_1 - 10\,\alpha_1\,\beta_2 + 11\,\alpha_1\,\beta_5 == 0 \,\&\&\\
&\quad \alpha_2\,\beta_1 + \alpha_1\,\beta_2 == 0 \,\&\&\, -20\,\alpha_1\,\beta_1 + 11\,\alpha_4\,\beta_1 + 11\,\alpha_1\,\beta_4 == 0) \;||\\
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\end{aligned}
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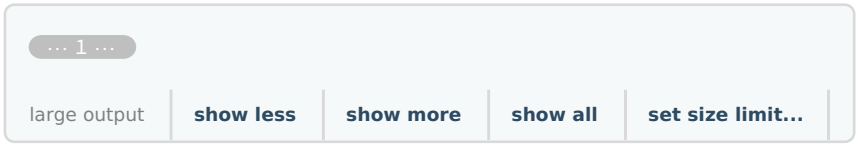
$$\begin{aligned}
&(\alpha_9\,\beta_8+\alpha_8\,\beta_9==0\ \&\&\ \alpha_9\,\beta_7+\alpha_7\,\beta_9==0\ \&\&\ \alpha_9\,\beta_6+\alpha_6\,\beta_9==0\ \&\&\ \alpha_9\,\beta_5+\alpha_5\,\beta_9==0\ \&\&\\
&\quad \alpha_7\,\beta_5+\alpha_9\,\beta_6+\alpha_5\,\beta_7+\alpha_6\,\beta_9==0\ \&\&\ \alpha_9\,\beta_4+\alpha_4\,\beta_9==0\ \&\&\ \alpha_9\,\beta_4+\alpha_8\,\beta_5+\alpha_5\,\beta_8+\alpha_4\,\beta_9==0\ \&\&\\
&\quad -10\,\alpha_9\,\beta_3-10\,\alpha_6\,\beta_5-10\,\alpha_5\,\beta_6+\alpha_9\,\beta_6-10\,\alpha_3\,\beta_9+\alpha_6\,\beta_9==0\ \&\&\\
&\quad -\alpha_9\,\beta_3+\alpha_9\,\beta_6-\alpha_3\,\beta_9+\alpha_6\,\beta_9==0\ \&\&\ \alpha_9\,\beta_3+\alpha_3\,\beta_9==0\ \&\&\ -\alpha_5\,\beta_3+\alpha_9\,\beta_3-\alpha_3\,\beta_5+\alpha_3\,\beta_9==0\ \&\&\\
&\quad -10\,\alpha_9\,\beta_2-20\,\alpha_5\,\beta_5+\alpha_9\,\beta_5-10\,\alpha_2\,\beta_9+\alpha_5\,\beta_9==0\ \&\&\ \alpha_9\,\beta_2+\alpha_2\,\beta_9==0\ \&\&\\
&\quad -\alpha_5\,\beta_2+\alpha_9\,\beta_2-\alpha_2\,\beta_5+\alpha_2\,\beta_9==0\ \&\&\ -10\,\alpha_9\,\beta_1-10\,\alpha_5\,\beta_4+\alpha_9\,\beta_4-10\,\alpha_4\,\beta_5-10\,\alpha_1\,\beta_9+\alpha_4\,\beta_9==\\
&\qquad 0\ \&\&\ \alpha_9\,\beta_1+\alpha_1\,\beta_9==0\ \&\&\ -\alpha_5\,\beta_1+\alpha_9\,\beta_1-\alpha_1\,\beta_5+\alpha_1\,\beta_9==0\ \&\&\ \alpha_8\,\beta_7+\alpha_7\,\beta_8==0\ \&\&\\
&\quad \alpha_8\,\beta_6+\alpha_6\,\beta_8==0\ \&\&\ \alpha_7\,\beta_6+\alpha_6\,\beta_7==0\ \&\&\ \alpha_8\,\beta_5+\alpha_5\,\beta_8==0\ \&\&\ \alpha_7\,\beta_5+\alpha_5\,\beta_7==0\ \&\&\\
&\quad \alpha_8\,\beta_4+\alpha_4\,\beta_8==0\ \&\&\ \alpha_7\,\beta_4+\alpha_4\,\beta_7==0\ \&\&\ \alpha_7\,\beta_4+\alpha_8\,\beta_6+\alpha_4\,\beta_7+\alpha_6\,\beta_8==0\ \&\&\\
&\quad -10\,\alpha_8\,\beta_3-10\,\alpha_6\,\beta_4-10\,\alpha_4\,\beta_6+\alpha_8\,\beta_6-10\,\alpha_3\,\beta_8+\alpha_6\,\beta_8==0\ \&\&\ \alpha_8\,\beta_3+\alpha_3\,\beta_8==0\ \&\&\\
&\quad -10\,\alpha_7\,\beta_3-20\,\alpha_6\,\beta_6+\alpha_7\,\beta_6-10\,\alpha_3\,\beta_7+\alpha_6\,\beta_7==0\ \&\&\ \alpha_7\,\beta_3+\alpha_3\,\beta_7==0\ \&\&\\
&\quad -5\,\alpha_6\,\beta_3-5\,\alpha_3\,\beta_6+\alpha_6\,\beta_6==0\ \&\&\ -\alpha_6\,\beta_3+\alpha_7\,\beta_3-\alpha_3\,\beta_6+\alpha_3\,\beta_7==0\ \&\&\\
&\quad -\alpha_4\,\beta_3+\alpha_8\,\beta_3-\alpha_3\,\beta_4+\alpha_3\,\beta_8==0\ \&\&\ -20\,\alpha_3\,\beta_3+11\,\alpha_6\,\beta_3+11\,\alpha_3\,\beta_6==0\ \&\&\\
&\quad -10\,\alpha_8\,\beta_2-10\,\alpha_5\,\beta_4-10\,\alpha_4\,\beta_5+\alpha_8\,\beta_5-10\,\alpha_2\,\beta_8+\alpha_5\,\beta_8==0\ \&\&\ -\alpha_8\,\beta_2+\alpha_8\,\beta_5-\alpha_2\,\beta_8+\alpha_5\,\beta_8==\\
&\qquad 0\ \&\&\ \alpha_8\,\beta_2+\alpha_2\,\beta_8==0\ \&\&\ -10\,\alpha_7\,\beta_2-10\,\alpha_6\,\beta_5+\alpha_7\,\beta_5-10\,\alpha_5\,\beta_6-10\,\alpha_2\,\beta_7+\alpha_5\,\beta_7==0\ \&\&\\
&\quad \alpha_7\,\beta_2+\alpha_2\,\beta_7==0\ \&\&\ -5\,\alpha_6\,\beta_2-5\,\alpha_5\,\beta_3-5\,\alpha_3\,\beta_5+\alpha_6\,\beta_5-5\,\alpha_2\,\beta_6+\alpha_5\,\beta_6==0\ \&\&\\
&\quad -\alpha_6\,\beta_2+\alpha_7\,\beta_2-\alpha_2\,\beta_6+\alpha_2\,\beta_7==0\ \&\&\ -5\,\alpha_5\,\beta_2-5\,\alpha_2\,\beta_5+\alpha_5\,\beta_5==0\ \&\&\\
&\quad -\alpha_4\,\beta_2+\alpha_8\,\beta_2-\alpha_2\,\beta_4+\alpha_2\,\beta_8==0\ \&\&\ -10\,\alpha_3\,\beta_2-10\,\alpha_2\,\beta_3+11\,\alpha_5\,\beta_3+11\,\alpha_3\,\beta_5==0\ \&\&\\
&\quad -10\,\alpha_3\,\beta_2+11\,\alpha_6\,\beta_2-10\,\alpha_2\,\beta_3+11\,\alpha_2\,\beta_6==0\ \&\&\ \alpha_3\,\beta_2+\alpha_2\,\beta_3==0\ \&\&\\
&\quad -20\,\alpha_2\,\beta_2+11\,\alpha_5\,\beta_2+11\,\alpha_2\,\beta_5==0\ \&\&\ -10\,\alpha_8\,\beta_1-20\,\alpha_4\,\beta_4+\alpha_8\,\beta_4-10\,\alpha_1\,\beta_8+\alpha_4\,\beta_8==0\ \&\&\\
&\quad \alpha_8\,\beta_1+\alpha_1\,\beta_8==0\ \&\&\ -10\,\alpha_7\,\beta_1-10\,\alpha_6\,\beta_4+\alpha_7\,\beta_4-10\,\alpha_4\,\beta_6-10\,\alpha_1\,\beta_7+\alpha_4\,\beta_7==0\ \&\&\\
&\quad -\alpha_7\,\beta_1+\alpha_7\,\beta_4-\alpha_1\,\beta_7+\alpha_4\,\beta_7==0\ \&\&\ \alpha_7\,\beta_1+\alpha_1\,\beta_7==0\ \&\&\\
&\quad -5\,\alpha_6\,\beta_1-5\,\alpha_4\,\beta_3-5\,\alpha_3\,\beta_4+\alpha_6\,\beta_4-5\,\alpha_1\,\beta_6+\alpha_4\,\beta_6==0\ \&\&\ -\alpha_6\,\beta_1+\alpha_7\,\beta_1-\alpha_1\,\beta_6+\alpha_1\,\beta_7==0\ \&\&\\
&\quad -5\,\alpha_5\,\beta_1-5\,\alpha_4\,\beta_2-5\,\alpha_2\,\beta_4+\alpha_5\,\beta_4-5\,\alpha_1\,\beta_5+\alpha_4\,\beta_5==0\ \&\&\ -5\,\alpha_4\,\beta_1-5\,\alpha_1\,\beta_4+\alpha_4\,\beta_4==0\ \&\&\\
&\quad -\alpha_4\,\beta_1+\alpha_8\,\beta_1-\alpha_1\,\beta_4+\alpha_1\,\beta_8==0\ \&\&\ -10\,\alpha_3\,\beta_1-10\,\alpha_1\,\beta_3+11\,\alpha_4\,\beta_3+11\,\alpha_3\,\beta_4==0\ \&\&\\
&\quad -10\,\alpha_3\,\beta_1+11\,\alpha_6\,\beta_1-10\,\alpha_1\,\beta_3+11\,\alpha_1\,\beta_6==0\ \&\&\\
&\quad \alpha_3\,\beta_1+\alpha_1\,\beta_3==0\ \&\&\ -10\,\alpha_2\,\beta_1-10\,\alpha_1\,\beta_2+11\,\alpha_4\,\beta_2+11\,\alpha_2\,\beta_4==0\ \&\&\\
&\quad -10\,\alpha_2\,\beta_1+11\,\alpha_5\,\beta_1-10\,\alpha_1\,\beta_2+11\,\alpha_1\,\beta_5==0\ \&\&\ \alpha_2\,\beta_1+\alpha_1\,\beta_2==0\ \&\&\\
&\quad -20\,\alpha_1\,\beta_1+11\,\alpha_4\,\beta_1+11\,\alpha_1\,\beta_4==0\ \&\&\ \alpha_3==0\ \&\&\ \alpha_9==0\ \&\&\ \alpha_1==0\ \&\&\ \alpha_2==0\ \&\&\ \alpha_7==0\ \&\&\ \alpha_8==0)
\end{aligned}$$

large output | **show less** | **show more** | **show all** | **set size limit...**

Reduce[%26]



FindInstance[%26, {α, β}]

FindInstance: The methods available to FindInstance are insufficient to find the requested instances or prove they do not exist.