```
r2 * D_t * (AC_pt / (Km2 + D_t + AC_pt)) == 0, AC_pt, Reals]
                                                                        0.5 (-1. cAMP Km2 r1 + cAMP r1 W0 - 1. cAMP r1 D_t - 1. cAMP r2 D_t - 1. Km1 r2 D_t - 1. r2
Out[31]= \left\{ AC_pt \rightarrow \right|
                                                                              0.5\,\sqrt{\left(\frac{1}{\left(\text{cAMP r1}-\text{1. r2 D}_{-}t\right)^{2}}\left(\text{cAMP}^{2}\,\text{Km2}^{2}\,\text{r1}^{2}+\text{2. cAMP}^{2}\,\text{Km2 r1}^{2}\,\text{W0}+\text{cAMP}^{2}\,\text{r1}^{2}\,\text{W0}^{2}+\text{2. cAMP}^{2}\,\text{Km2}^{2}\right)\right)}
                                                                                                                Km2 r1^2 D_t + 2. cAMP^2 Km2 r1 r2 D_t + 2. cAMP Km1 Km2 r1 r2 D_t + 2. cAMP^2 r1^2 W(
                                                                                                          2. cAMP^{2} r1 r2 W0 D_t - 2. cAMP Km1 r1 r2 W0 D_t - 2. cAMP Km2 r1 r2 W0 D_t -
                                                                                                          2. cAMP r1 r2 W0^2 D_t + cAMP^2 r1^2 D_t^2 + 2. cAMP^2 r1 r2 D_t^2 + 2. cAMP Km1 r1 r2 D_
                                                                                                          cAMP^2\; r2^2\; D\_t^2\; +\; 2\; .\;\; cAMP\; Km1\; r2^2\; D\_t^2\; +\; Km1^2\; r2^2\; D\_t^2\; -\; 2\; .\;\; cAMP\; r1\; r2\; W0\; D\_t^2\; +\; CAMP\; r1\; r2\; W0\; D\_t^2\;
                                                                                                          2. cAMP r2^2 W0 D_t^2 + 2. Km1 r2^2 W0 D_t^2 + r2^2 W0^2 D_t^2 ) if condition +
   1. cAMP r2 D_t - 1. Km1 r2 D_t - 1. r2 W0 D_t)) / (cAMP r1 - 1. r2 D_t) -
                                                                                 0.5 \sqrt{(cAMP^2 Km2^2 r1^2 + 2. cAMP^2 Km2 r1^2 W0 + cAMP^2 r1^2 W0^2 + 2. cAMP^2 Km2 r1^2 D_t + 2. cAMP^2 CMP^2 CM
                                                                                                                2. cAMP^2 Km2 r1 r2 D_t + 2. cAMP Km1 Km2 r1 r2 D_t + 2. cAMP^2 r1^2 W0 D_t - 2
                                                                                                               2. CAMP 2 r1 r2 W0 D_t - 2. CAMP Km1 r1 r2 W0 D_t - 2. CAMP Km2 r1 r2 W0 D_t -
                                                                                                               2. CAMP r1 r2 W0^2 D_t + cAMP^2 r1^2 D_t^2 + 2. CAMP^2 r1 r2 D_t^2 + 2. CAMP Km1 r1 |
                                                                                                               cAMP^{2} r2^{2} D_{t}^{2} + 2. cAMP Km1 r2^{2} D_{t}^{2} + Km1^{2} r2^{2} D_{t}^{2} - 2. cAMP r1 r2 W0 D_{t}^{2} + C
                                                                                                                2. camp r2^2 W0 D_t<sup>2</sup> + 2. Km1 r2^2 W0 D_t<sup>2</sup> + r2^2 W0<sup>2</sup> D_t<sup>2</sup>) / (camp r1 - 1. r2 D_
                                                                              if (cAMP > 0 \&\& r1 > 0 \&\& D_t < 0 \&\& r2 < 0 \&\& Km2 < -1.^ D_t \&\& Km1 < -1.^ cAMP) | |
                                                                                   (cAMP > 0 \&\& r2 > 0 \&\& D t < 0 \&\&
                                                                                            r1 < 0 \&\& Km2 < -1. D_t && Km1 < -1. cAMP) ||
                                                                                   (Km1 > -1. cAMP && cAMP > 0 && r1 > 0 && r2 > 0 && D_t < 0 && Km2 < -1. D_t) | |
                                                                                   (Km1 > -1. cAMP && cAMP > 0 && D t < 0 && r2 < 0 && r1 < 0 && Km2 < -1. D t) | |
                                                                                   (Km1 > -1. cAMP && Km2 > -1. D_t && cAMP > 0 && r2 > 0 && D_t < 0 && r1 < 0) | |
                                                                                   (\text{Km1} > -1. \ \text{cAMP \&\& Km2} > -1. \ \text{D_t \&\& r1} > 0 \&\& r2 > 0 \&\& D_t < 0 \&\& \text{cAMP} < 0) \ | \ |
                                                                                   (Km1 > -1. cAMP && Km2 > -1. D t && D t < 0 && r2 < 0 && r1 < 0 && cAMP < 0) | |
                                                                                   (\text{Km1} > -1. \ \text{cAMP \& r1} > 0 \& D_t < 0 \& r2 < 0 \& \text{cAMP} < 0 \& \text{Km2} < -1. \ D_t) \ | \ |
                                                                                   (Km1 > -1. cAMP && r2 > 0 && D_t < 0 && r1 < 0 && cAMP < 0 && Km2 < -1. D_t) | |
                                                                                   (\text{Km2} > -1. \ \text{D\_t \&\& cAMP} > 0 \, \&\& \, \text{r1} > 0 \, \&\& \, \text{r2} > 0 \, \&\& \, \text{D\_t} < 0 \, \&\& \, \text{Km1} < -1. \ \ \text{cAMP}) \ \mid \ \mid
                                                                                   (Km2 > -1.) D t && cAMP > 0 && D t < 0 && r2 < 0 && r1 < 0 && Km1 < -1.) cAMP) | |
                                                                                   (\text{Km2} > -\text{1.} \ \text{D\_t \&\& r1} > 0 \&\& \, \text{D\_t} < 0 \&\& \, \text{r2} < 0 \&\& \, \text{cAMP} < 0 \&\& \, \text{Km1} < -\text{1.} \ \text{cAMP}) \ \mid \ \mid \ \text{cAMP} > 0 \&\& \, \text{cAMP} < 0 \&\& \, \text{cAMP} > 0 \&\&
                                                                                   (\text{Km2} > -1. \ \text{D\_t \&\& r2} > 0 \&\& \, \text{D\_t} < 0 \&\& \, \text{r1} < 0 \&\& \, \text{cAMP} < 0 \&\& \, \text{Km1} < -1. \ \ \text{cAMP}) \ \mid \ \mid
                                                                                   (r1 > 0 \&\& r2 > 0 \&\& D_t < 0 \&\& cAMP < 0 \&\& Km2 < -1. \ D_t \&\& Km1 < -1. \ cAMP) \ |\ |
                                                                                   (D_t > 0 \& cAMP > 0 \& r2 < 0 \& r1 < 0 \& Km2 < -1. D_t \& Km1 < -1. cAMP) | |
                                                                                   (D_t > 0 \& Km1 > -1. camp & camp > 0 \& r1 > 0 \& r2 < 0 \& Km2 < -1. D_t) | |
                                                                                   (D_t > 0 \& Km1 > -1. camp & Km2 > -1. D_t & camp > 0 & r2 < 0 & r1 < 0) | |
                                                                                   (D_t > 0 \& Km1 > -1. `cAMP \& Km2 > -1. `D_t \& r2 > 0 \& r1 < 0 \& cAMP < 0) \ | \ |
```

In[31]:= NSolve[r1 * cAMP * ((W0 - AC_pt) / (Km1 + cAMP + (W0 - AC_pt))) -

```
(D_t > 0 \& Km2 > -1. D_t \& r1 > 0 \& r2 > 0 \& cAMP < 0 \& Km1 < -1. cAMP)
(D_t > 0 \& Km2 > -1. \ D_t \& r2 < 0 \& r1 < 0 \& cAMP < 0 \& Km1 < -1. \ cAMP) \ | \ |
(D_t > 0 \& r1 > 0 \& r2 < 0 \& cAMP < 0 \& Km2 < -1. D_t \& Km1 < -1. cAMP) | |
(D_t > 0 \& r^2 > 0 \& r^1 < 0 \& cAMP < 0 \& Km^2 < -1. D_t \& Km^1 < -1. cAMP) | | 
(D_t < 0 \& r2 < 0 \& r1 < 0 \& cAMP < 0 \& Km2 < -1. D_t \& Km1 < -1. cAMP) | |
      \label{eq:w0} \mbox{W0 < } \frac{\mbox{-1.$\^{`}} \mbox{ cAMP Km2 r1 - 1.$\^{`}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{cAMP r1 - 1.$\^{`}} \mbox{ r2 D_t}} \mbox{ ---}
                                2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                   cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2)) | |
   cAMP > 0 && D_t < 0 && r2 < 0 && r1 < 0 && Km2 < -1.` D_t && Km1 < -1.` cAMP &&
            2. ^{^{\circ}} ^{\circ} ^
                                                                                                                                   cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2)) | |
\int Km1 > -1. cAMP && cAMP > 0 && r1 > 0 && D_t < 0 && r2 < 0 && Km2 < -1. D_t &&
            2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                   cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2)) | |
 Km1 > -1. cAMP && cAMP > 0 && r2 > 0 && D_t < 0 && r1 < 0 && Km2 < -1. D_t &&
            \mbox{W0} < \frac{\mbox{-1.$\^{`}} \mbox{ cAMP Km2 r1 - 1.$\^{`}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{--}} \mbox{ ---} - \mbox{---} - \
                                 2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                   cAMP Km1 r1 r2 D_t^2)) / (cAMP r1 - 1. ^{^{\circ}} r2 D_t) ) | | |
\int Km1 > -1. CAMP && Km2 > -1. D_t && CAMP > 0 && r1 > 0 && r2 > 0 && D_t < 0 &&
            W0 < -1. CAMP Km2 r1 - 1. CAMP r1 D_t + CAMP r2 D_t + Km1 r2 D_t -
                                                                                                                                                                                                     cAMP r1 - 1.` r2 D t
                                 2. ^{^{\circ}}\sqrt{\left(-\left(\left(1.\right)^{^{\circ}}\left(cAMP^{2}\ Km2\ r1\ r2\ D_{\_}t\ +\ cAMP\ Km1\ Km2\ r1\ r2\ D_{\_}t\ +\ cAMP^{2}\ r1\ r2\ D_{\_}t^{2}\ r1
                                                                                                                                   cAMP Km1 r1 r2 D_t<sup>2</sup>)) / (cAMP r1 - 1. ^{1} r2 D_t) )) | | |
\mbox{Km1} > -1.\ \mbox{cAMP \& Km2} > -1.\ \mbox{D_t \& cAMP} > 0 \& \mbox{D_t < 0 \& r2 < 0 \& r1 < 0 \& cAMP} = 0. \mbox{CAMP & cAMP} = 0. \mbox{CAMP & cAMP} = 0. \mbox{CAMP} = 0. \mbox{CAMP & cAMP} = 0. \mbox{CAMP & cAMP} = 0. \mbox{CAMP} = 0. 
                                                          -1. CAMP Km2 r1 - 1. CAMP r1 D_t + CAMP r2 D_t + Km1 r2 D_t
```

 $(D_t > 0 \&\& Km1 > -1.\ cAMP \&\& r2 < 0 \&\& r1 < 0 \&\& cAMP < 0 \&\& Km2 < -1.\ D_t) \ |\ |$

```
cAMP Km1 r1 r2 D_t<sup>2</sup>)) / (cAMP r1 - 1.^{1} r2 D_t) ) | | |
Km1 > -1. cAMP && Km2 > -1. D_t && r1 > 0 && D_t < 0 && r2 < 0 && cAMP < 0 &&
        W0 < \frac{-1.\text{ cAMP Km2 r1} - 1.\text{ cAMP r1 D_t} + \text{cAMP r2 D_t} + \text{Km1 r2 D_t}}{\text{camp r1} + \text{camp r1} + \text{camp r2 D_t}}
                        2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                   cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) | | |
(m1 > -1.) cAMP && Km2 > -1. D_t && r2 > 0 && D_t < 0 && r1 < 0 && cAMP < 0 &&
        W0 < -1. camp Km2 r1 - 1. camp r1 D_t + camp r2 D_t + Km1 r2 D_t
                        2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                  cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) | | |
Km1 > -1.` cAMP && r1 > 0 && r2 > 0 && D_t < 0 && cAMP < 0 && Km2 < -1.` D_t &&
        \label{eq:w0} \mbox{W0} < \frac{\mbox{-1.$\^{`}} \mbox{ cAMP Km2 r1 - 1.$\^{`}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{W0}}
                        cAMP Km1 r1 r2 D_t<sup>2</sup>)) / (cAMP r1 - 1.^{1} r2 D_t) ) | | |
 \left( \text{Km1} > -1. \text{`cAMP \& W0} > \frac{-1. \text{`cAMP Km2 r1} - 1. \text{`cAMP r1 D_t} + \text{cAMP r2 D_t} + \text{Km1 r2 D_t}}{\text{cAMP r1} - 1. \text{`r2 D_t}} \right) 
                         cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
         cAMP > 0 \& r1 > 0 \& D_t < 0 \& r2 < 0 \& Km2 < -1. D_t | | Km1 > -1. cAMP \& CAMP & CAM
        cAMP r1 - 1. r2 D t
                        cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t)^2) & & \\
          cAMP > 0 \& r2 > 0 \& D_t < 0 \& r1 < 0 \& Km2 < -1. D_t \\ | | Km1 > -1. cAMP \& CAMP & 
         W0 > -1.` cAMP Km2 r1 - 1.` cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t +
                                                                                                                                                              cAMP r1 - 1. r2 D_t
                        2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                   cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
         -1. CAMP Km2 r1 - 1. CAMP r1 D_t + CAMP r2 D_t + Km1 r2 D_t
```

```
cAMP r1 - 1.` r2 D_t
                                    2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                    cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
               W0 > \frac{-1.\text{ cAMP Km2 r1} - 1.\text{ cAMP r1 D_t} + \text{cAMP r2 D_t} + \text{Km1 r2 D_t}}{\text{cAMP r1} - 1.\text{ r2 D_t}} + \frac{1.\text{ cAMP Km2 r1} + \text{cAMP r2 D_t}}{\text{cAMP r1} - 1.\text{ r2 D_t}} + \frac{1.\text{ cAMP Km2 r1} + \text{cAMP r2 D_t}}{\text{cAMP r1} - 1.\text{ r2 D_t}} + \frac{1.\text{ cAMP r2 D_t}}{\text{cAMP r1} - 1.\text{ r2 D_t}} + \frac{1.\text{ cAMP r2 D_t}}{\text{cAMP r1} - 1.\text{ r2 D_t}} + \frac{1.\text{ cAMP r2 D_t}}{\text{cAMP r1} - 1.\text{ r2 D_t}} + \frac{1.\text{ cAMP r2 D_t}}{\text{cAMP r1} - 1.\text{ cAMP r2 D_t}} + \frac{1.\text{ cAMP r2 D_t}}{\text{cAMP r1} - 1.\text{ cAMP r2 D_t}} + \frac{1.\text{ cAMP r2 D_t}}{\text{cAMP r1} - 1.\text{ cAMP r2 D_t}} + \frac{1.\text{ cAMP r2 D_t}}{\text{cAMP r1} - 1.\text{ cAMP r2 D_t}} + \frac{1.\text{ cAMP r2 D_t}}{\text{cAMP r2 D_t}} + \frac{1.\text{ cAMP r2 D_t}}{\text{cAMP
                                                                                                                                                                                                                               cAMP r1 - 1.` r2 D_t
                                       2. \sqrt{\left(-\left(\left(1.\right)\left(\text{cAMP}^2\text{ Km2 r1 r2 D_t} + \text{cAMP Km1 Km2 r1 r2 D_t} + \text{cAMP}^2\text{ r1 r2 D_t}^2 + \right)\right)}
                                                                                                                                                    cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
               \label{eq:w0} \mbox{W0} \mbox{ > } \frac{\mbox{-1.$\^{}} \mbox{ cAMP Km2 r1 - 1.$\^{}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{ + }} \mbox{ + } \\ \mbox{ + } \mbox{ + } \mbox{ + } \mbox{ cAMP Km2 r1 - 1.$\^{}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{ + }} \mbox{ + } \mbox{ + } \mbox{ cAMP Km2 r1 - 1.$\^{}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{ + }} \mbox{ + } \mbox{ cAMP Km2 r1 - 1.$\^{}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{ + }} \mbox{ + } \mbox{ cAMP Km2 r1 - 1.$\^{}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{ + }} \mbox{ + } \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{ + }} \mbox{ + } \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{ + }} \mbox{ + } \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{ + }} \mbox{ + } \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{ + }} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{ + }} \mbox{ + } \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t 
                                                                                                                                                                                                                                            cAMP r1 - 1. r2 D t
                                       2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                    cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
               W0 > -1. CAMP Km2 r1 - 1. CAMP r1 D_t + CAMP r2 D_t + Km1 r2 D_t +
                                     cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
               r1 > 0 & r2 > 0 & D_t < 0 & cAMP < 0 & Km2 < -1. D_t | | Km1 > -1. cAMP & CAM
               cAMP r1 - 1.` r2 D_t
                                     2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                    cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t)^2) & & \\
              D_t < 0 \& r2 < 0 \& r1 < 0 \& cAMP < 0 \& Km2 < -1. D_t \& cAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & Km2 < -1. D_t & CAMP < 0 & CAMP 
              W0 < \frac{-1.\ camp\ km2\ r1 - 1.\ camp\ r1\ D_t + camp\ r2\ D_t + km1\ r2\ D_t}{}
                                                                                                                                                                                                                                           cAMP r1 - 1. r2 D_t
                                    2. ` \sqrt{\left(-\left(\left(1.\right.\right)\left(\text{cAMP}^2\text{ Km2 r1 r2 D_t} + \text{cAMP Km1 Km2 r1 r2 D_t} + \text{cAMP}^2\text{ r1 r2 D_t}^2 + \right)}
                                                                                                                                                    cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) | | |
Km2 > -1. D_t && cAMP > 0 && r1 > 0 && D_t < 0 && r2 < 0 && Km1 < -1. cAMP &&
              cAMP r1 - 1. r2 D_t
                                    2. ^{^{\circ}}\sqrt{\left(-\left(\left(1.\right)^{^{\circ}}\left(cAMP^{2}\ Km2\ r1\ r2\ D_{\_}t+cAMP\ Km1\ Km2\ r1\ r2\ D_{\_}t+cAMP^{2}\ r1\ r2\ D_{\_}t^{2}+cAMP^{2}\ r1\ r2\ D_{\_}t^{2}+cAMP^{2}
                                                                                                                                                    cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) | |
 Km2 > -1.` D_t && cAMP > 0 && r2 > 0 && D_t < 0 && r1 < 0 && Km1 < -1.` cAMP &&
```

```
\label{eq:w0} \mbox{W0} < \frac{\mbox{-1.$\^{`}} \mbox{cAMP Km2 r1 - 1.$\^{`}} \mbox{cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{cAMP r1 - 1.$\^{`}} \mbox{r2 D_t}} \mbox{-}
                                           2. \sqrt{-((1.)^2 (CAMP^2 Km^2 r^1 r^2 D_t + CAMP Km^1 Km^2 r^1 r^2 D_t + CAMP^2 r^1 r^2 D_t^2 + CAMP^2 r^2 r^2 r^2 D_t^2 + CAMP^2 r^2 r^2 r^2 D_t^2 + CAMP^2 r^2 r^2 r^2 D_t^2 D_t^2 r^2 D_t^2 D_
                                                                                                                                                                           cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) | |
 Km2 > -1. D_t && r1 > 0 && r2 > 0 && D_t < 0 && cAMP < 0 && Km1 < -1. cAMP &&
                  cAMP r1 - 1. r2 D_t
                                             2. ` \sqrt{\left(-\left(\left(1.\right.\right)\left(\text{cAMP}^2\text{ Km2 r1 r2 D_t} + \text{cAMP Km1 Km2 r1 r2 D_t} + \text{cAMP}^2\text{ r1 r2 D_t}^2 + \right)}
                                                                                                                                                                           cAMP Km1 r1 r2 D_{t}^{2}) / (cAMP r1 - 1. r2 D_{t}^{2})) | |
\left( \text{Km2} > -1.\right) D_t \& D_t < 0 \& r2 < 0 \& r1 < 0 \& cAMP < 0 \& Km1 < -1.\right) cAMP & cAMP & cAMP < 0 & cAMP 
                  W0 < -1. CAMP Km2 r1 - 1. CAMP r1 D_t + CAMP r2 D_t + Km1 r2 D_t -
                                                                                                                                                                                                                                                                                 cAMP r1 - 1. r2 D_t
                                             2. ` \sqrt{\left(-\left(\left(1.\right.\right)\left(\text{cAMP}^2\text{ Km2 r1 r2 D_t} + \text{cAMP Km1 Km2 r1 r2 D_t} + \text{cAMP}^2\text{ r1 r2 D_t}^2 + \right)}
                                                                                                                                                                           cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) | |
r1 > 0 \&\& D_t < 0 \&\& r2 < 0 \&\& cAMP < 0 \&\& Km2 < -1. D_t \&\& Km1 < -1. cAMP \&\& Km2 < -1. cAMP &\& Km2 < -1. camp && Km2 
                \label{eq:w0} \mbox{W0 < } \frac{\mbox{-1.$\^{`}} \mbox{ cAMP Km2 r1 - 1.$\^{`}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{cAMP r1 - 1.$\^{`}} \mbox{ r2 D_t}}
                                             2. ^{^{\circ}}\sqrt{\left(-\left(\left(1.\right)^{^{\circ}}\left(cAMP^{2}\ Km2\ r1\ r2\ D_{\_}t+cAMP\ Km1\ Km2\ r1\ r2\ D_{\_}t+cAMP^{2}\ r1\ r2\ D_{\_}t^{2}+cAMP^{2}\ r1\ r2\ D_{\_}t^{2}+cAMP^{2}
                                                                                                                                                                           cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) | | |
r2 > 0 \&\& D_t < 0 \&\& r1 < 0 \&\& cAMP < 0 \&\& Km2 < -1. D_t \&\& Km1 < -1. cAMP \&\& CAMP && CAMP &
                \label{eq:w0} \mbox{W0 < } \frac{\mbox{-1.$\^{`}} \mbox{ cAMP Km2 r1 - 1.$\^{`}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{cAMP r1 - 1.$\^{`}} \mbox{ r2 D_t}}
                                              cAMP Km1 r1 r2 D_t<sup>2</sup>)) / (cAMP r1 - 1.^{1} r2 D_t) )) | | |
 \left( \text{W0} > \frac{\text{-1.`cAMP Km2 r1-1.`cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}}{\text{cAMP r1-1.`r2 D_t}} \right. + \\ \left. \frac{\text{-1.`r2 D_t + Km1 r2 D_t}}{\text{-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`camp Km2 r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`c
                                              2. ^{^{\circ}}\sqrt{(-((1.)^{\circ}(cAMP^{2}Km2\,r1\,r2\,D_{t}+cAMP\,Km1\,Km2\,r1\,r2\,D_{t}+cAMP^{2}\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r1\,r2\,D_{t}^{2}+cAMP^{2}Km2\,r2
                                                                                                                                                                             CAMP Km1 r1 r2 D_t^2)) / (CAMP r1 - 1. r2 D_t)^2)) &&
                     cAMP > 0 \& r1 > 0 \& r2 > 0 \& D_t < 0 \& Km2 < -1. D_t \& Km1 < -1. cAMP | | | 
  \left( \text{W0} > \frac{-\text{1.}\ \text{cAMP Km2 r1} - \text{1.}\ \text{cAMP r1}\ \text{D\_t} + \text{cAMP r2}\ \text{D\_t} + \text{Km1 r2}\ \text{D\_t}}{\text{cAMP r1} - \text{1.}\ \text{r2}\ \text{D\_t}} \right. + \\ 
                                              2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                             cAMP Km1 r1 r2 D_t^2)) / (cAMP r1 - 1. r2 D_t)^2)) &&
                       CAMP > 0 && D_t < 0 && r2 < 0 && r1 < 0 && Km2 < -1. D_t && Km1 < -1. CAMP | | |
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 \left( \text{W0} > \frac{\text{-1.`cAMP Km2 r1-1.`cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}}{\text{cAMP r1-1.`r2 D_t}} \right. + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`r2 D_t}}{\text{-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`camp r1 D_t + camp r2 D_t + Km1 r2 D_t}}{\text{-1.`camp r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`camp r1 D_t + camp r2 D_t + Km1 r2 D_t}}{\text{-1.`camp r1-1.`camp r1-1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp Km2 r1-1.`camp r1 D_t + camp r2 D_t + Km1 r2 D_t}}{\text{-1.`camp r1-1.`camp r1-1.`cam
                                       2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                    CAMP Km1 r1 r2 D_t^2)) / (CAMP r1 - 1. r2 D_t)^2)) &&
                  \left( W0 > \frac{-1.\text{ cAMP Km2 r1} - 1.\text{ cAMP r1 D_t} + \text{cAMP r2 D_t} + \text{Km1 r2 D_t}}{\text{cAMD r1} + 1.\text{ camp r2 D_t}} + \right) 
                                                                                                                                                                                                                           cAMP r1 - 1.` r2 D_t
                                       cAMP Km1 r1 r2 D_t<sup>2</sup>)) / (cAMP r1 - 1. r2 D_t^2) &&
                   \left( \text{W0} > \frac{-\text{1.} \cdot \text{cAMP Km2 r1} - \text{1.} \cdot \text{cAMP r1 D\_t} + \text{cAMP r2 D\_t} + \text{Km1 r2 D\_t}}{\text{cAMP r1} - \text{1.} \cdot \text{r2 D\_t}} \right. + \\ 
                                       2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                    cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                  \left( \text{W0} > \frac{\text{-1.`cAMP Km2 r1 - 1.`cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}}{\text{cAMP r1 - 1.`r2 D_t}} \right. + \\ \frac{\text{-1.`r2 D_t}}{\text{-1.`r2 D_t}} + \\ \frac{\text{-1. r2 D_t}}{\text{-1. r2 D
                                       cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                  \left( \text{W0} > \frac{\text{-1.`cAMP Km2 r1 - 1.`cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}}{\text{cAMP r1 - 1.`r2 D_t}} \right. + \\ \frac{\text{-1.`r2 D_t}}{\text{-1.`r2 D_t}} + \\ \frac{\text{-1.\r2 D_t}}{\text{-1.\r2 D
                                       2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                    cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                  \left( W0 > \frac{-1. \text{ cAMP Km2 r1} - 1. \text{ cAMP r1 D_t} + \text{cAMP r2 D_t} + \text{Km1 r2 D_t}}{\text{cAMP r1} - 1. \text{ r2 D_t}} + \right) 
                                                                                                                                                                                                                              cAMP r1 - 1. r2 D_t
                                       2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                    cAMP Km1 r1 r2 D_t<sup>2</sup>)) / (cAMP r1 - 1. ^{2} r2 D_t)<sup>2</sup>)) &&
                  D_t > 0 && cAMP > 0 && r1 > 0 && r2 < 0 && Km2 < -1.` D_t && Km1 < -1.` cAMP &&
               \label{eq:w0} \mbox{W0 < } \frac{\mbox{-1.$^{\circ}$ cAMP Km2 r1 - 1.$^{\circ}$ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}}{\mbox{cAMP r1 - 1.$^{\circ}$ r2 D_t}} \ .
                                      cAMP Km1 r1 r2 D_{t}^{2}) / (cAMP r1 - 1. r2 D_{t}^{2})) | | |
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 $\label{eq:weighted} \text{W0} \, < \, \frac{\texttt{-1.} \, \text{cAMP Km2 r1 - 1.} \, \text{cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}}{\text{W0}} \, < \, \frac{\texttt{-1.} \, \text{cAMP Km2 r1 - 1.} \, \text{cAMP r1 D_t + camp r2 D_t}}{\text{M0}} \, = \, \frac{\texttt{-1.} \, \text{cAMP Km2 r1 - 1.} \, \text{camp r1 D_t + camp r2 D_t}}{\text{M0}} \, = \, \frac{\texttt{-1.} \, \text{camp Km2 r1 - 1.} \, \text{camp r1 D_t + camp r2 D_t}}{\text{M0}} \, = \, \frac{\texttt{-1.} \, \text{camp Km2 r1 - 1.} \, \text{camp r1 D_t + camp r2 D_t}}{\text{M0}} \, = \, \frac{\texttt{-1.} \, \text{camp Km2 r1 - 1.} \, \text{camp r1 D_t + camp r2 D_t}}{\text{M0}} \, = \, \frac{\texttt{-1.} \, \text{camp Km2 r1 - 1.} \, \text{camp r1 D_t + camp r2 D_t}}{\text{M0}} \, = \, \frac{\texttt{-1.} \, \text{camp Km2 r1 - 1.} \, \text{camp r1 D_t + camp r2 D_t}}{\text{M0}} \, = \, \frac{\texttt{-1.} \, \text{camp r1 D_t + camp r2 D_t}}{\text{M0}} \, = \, \frac{\texttt{-1.} \, \text{camp r1 D_t}}{\text{M0}} \, = \, \frac{\texttt{-1.} \, \text{camp$ 2. $^{^{\circ}}$ $^{\prime}$ (- ((1. $^{^{\circ}}$ (cAMP 2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP 2 r1 r2 D_t 2 + cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. $r2 D_t^2$) | | 2. $\sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1$ cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. $r2 D_t^2$) | | $D_t > 0 \& Km1 > -1.$ cAMP & cAMP > 0 & r2 < 0 & r1 < 0 & Km2 < -1. D_t & W0 < $\frac{-1.\ \text{camp Km2 r1} - 1.\ \text{camp r1}\ \text{D_t} + \text{camp r2}\ \text{D_t} + \text{Km1}\ \text{r2}\ \text{D_t}}{}$ 2. $\sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1$ cAMP Km1 r1 r2 D_t²)) / (cAMP r1 - 1. $^{^{\circ}}$ r2 D_t) $^{^{2}}$)) | | | $\label{eq:w0} \mbox{W0 < } \frac{\mbox{-1.$\^{`}} \mbox{ cAMP Km2 r1 - 1.$\^{`}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{W0 < }}$ cAMP r1 - 1. r2 D t 2. $\sqrt{(-((1. (cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1$ cAMP Km1 r1 r2 D_{t}^{2}) / (cAMP r1 - 1. $r2 D_{t}^{2}$)) | | $\label{eq:w0} \mbox{$W0$ < $\frac{-1.$ camp km2 r1 - 1.$ camp r1 D_t + camp r2 D_t + km1 r2 D_t }{camp r1 - 1.$ r2 D_t }}$ 2. $^{^{\circ}}\sqrt{\left(-\left(\left(1.\right)^{^{\circ}}\left(cAMP^{2}\ Km2\ r1\ r2\ D_{_}t+cAMP\ Km1\ Km2\ r1\ r2\ D_{_}t+cAMP^{2}\ r1\ r2\ D_{_}t^{2}+cAMP^{2}\ r1\ r2\ D_{_}t^{2}+cAMP^{2}$ cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. $r2 D_t^2$) | | | $\left(D_{t} > 0 \& Km1 > -1. \right) cAMP \& Km2 > -1. \right) D_{t} \& r1 > 0 \& r2 > 0 \& cAMP < 0 \& cAMP < 0 \& cAMP < 0 \& cAMP < 0 & cAMP < 0 &$ W0 < -1. CAMP Km2 r1 - 1. CAMP r1 D_t + CAMP r2 D_t + Km1 r2 D_t cAMP r1 - 1. r2 D t 2. $\sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1$ cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. $r2 D_t^2$) | | | $D_t > 0 \& Km1 > -1. ` cAMP \& Km2 > -1. ` D_t \& r2 < 0 \& r1 < 0 \& cAMP < 0 \& cAMP < 0 & cAMP < 0 &$ -1.` cAMP Km2 r1 - 1.` cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t

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cAMP r1 - 1.` r2 D_t
                                           2. ` \sqrt{\left(-\left(\left(1.\right.\right)\left(\text{cAMP}^2\text{ Km2 r1 r2 D_t} + \text{cAMP Km1 Km2 r1 r2 D_t} + \text{cAMP}^2\text{ r1 r2 D_t}^2 + \right)}
                                                                                                                                                                             cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) | |
\label{eq:wo} \mbox{W0} < \frac{\mbox{-1.$^{\circ}$ cAMP Km2 r1 - 1.$^{\circ}$ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}}{\mbox{cAMP r1 - 1.$^{\circ}$ r2 D_t}} \ - \mbox{cAMP r1 - 1.$^{\circ}$ r2 D_t}
                                           2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                             cAMP Km1 r1 r2 D_{t}^{2}) / (cAMP r1 - 1. r2 D_{t}^{2})) | |
\left( D_{t} > 0 \, \&\& \, Km1 > -1. \ \ cAMP \, \&\& \, r2 > 0 \, \&\& \, r1 < 0 \, \&\& \, cAMP < 0 \, \&\& \, Km2 < -1. \ \ D_{t} \, \&\& \, cAMP < 0 \, \&\& \, cAMP < 
                  \label{eq:w0} \mbox{W0 < } \frac{\mbox{-1.$\^{`}} \mbox{ cAMP Km2 r1 - 1.$\^{`}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{cAMP r1 - 1.$\^{`}} \mbox{ r2 D_t}}
                                           2. \sqrt{-((1.)^2 (CAMP^2 Km^2 r^1 r^2 D_t + CAMP Km^1 Km^2 r^1 r^2 D_t + CAMP^2 r^1 r^2 D_t^2 + CAMP^2 r^2 r^2 r^2 D_t^2 + CAMP^2 r^2 r^2 r^2 D_t^2 + CAMP^2 r^2 r^2 r^2 D_t^2 D_t^2 r^2 D_t^2 r^2 D_t^2 r^2 D_t^2 r^2 D_t^2 r^2 D_t^2 r^2 D_
                                                                                                                                                                             cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2)) | |
\label{eq:w0} \mbox{W0 < } \frac{\mbox{-1.$\^{`}} \mbox{ cAMP Km2 r1 - 1.$\^{`}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{cAMP r1 - 1.$\^{`}} \mbox{ r2 D_t}}
                                           2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                             cAMP Km1 r1 r2 D_{t}^{2}) / (cAMP r1 - 1. r2 D_{t}^{2})) | |
\label{eq:w0} \mbox{W0 < } \frac{\mbox{-1.$\^{`}$ cAMP Km2 r1 - 1.$\^{`}$ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}}{\mbox{cAMP r1 - 1.$\^{`}$ r2 D_t}} \mbox{ - } \\
                                             2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                             cAMP Km1 r1 r2 D_{t}^{2}) / (cAMP r1 - 1. r2 D_{t}^{2})) | |
W0 < -1. CAMP Km2 r1 - 1. CAMP r1 D_t + CAMP r2 D_t + Km1 r2 D_t -
                                                                                                                                                                                                                                                                               cAMP r1 - 1. r2 D t
                                             2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                             cAMP Km1 r1 r2 D_{t}^{2}) / (cAMP r1 - 1. r2 D_{t}^{2})) | |
\label{eq:w0} \mbox{W0 < } \frac{\mbox{-1.$\^{}} \mbox{ cAMP Km2 r1 - 1.$\^{}} \mbox{ cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{cAMP r1 - 1.$\^{}} \mbox{ r2 D_t}} \mbox{ --} \\ \mbox{ } \mbox{ }
                                             2. ^{^{\circ}}\sqrt{(-((1.^{^{\circ}}(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1 r2 D_t^
```

```
cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) | | |
  \label{eq:w0} \mbox{W0} < \frac{\mbox{-1.$\^{`}} \mbox{cAMP Km2 r1 - 1.$\^{`}} \mbox{cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}{\mbox{$^{-}$}}
                                                                      2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                                      cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) | | |
 \left( \text{D_t > 0 \&\& W0 > } \frac{\text{-1.`camp km2 r1 - 1.`camp r1 D_t + camp r2 D_t + km1 r2 D_t}}{\text{camp r1 - 1.`r2 D_t}} \right. + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`r2 D_t}}{\text{-1.`camp r1 - 1.`r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`r2 D_t}}{\text{-1.`camp r1 D_t + camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r1 D_t + camp r2 D_t + km1 r2 D_t}}{\text{-1.`camp r1 D_t + camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r1 D_t + camp r2 D_t + km1 r2 D_t}}{\text{-1.`camp km2 r1 - 1.`camp km
                                                                         2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                                           cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                                   cAMP > 0 & r1 > 0 & r2 < 0 & Km2 < -1. D_t & Km1 < -1. cAMP | | |
  \left( D_{t} > 0 \&\& \ \text{W0} > \frac{-1.\ \text{camp km2 r1} - 1.\ \text{camp r1} \ D_{t} + \text{camp r2} \ D_{t} + \text{km1 r2} \ D_{t}}{\text{camp r1} - 1.\ \text{r2} \ D_{t}} \right. + \\ \left( \frac{1}{2} \left( \frac{1}{2} + \frac{1}{2
                                                                         2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                                        CAMP Km1 r1 r2 D_t^2)) / (CAMP r1 - 1. r2 D_t)^2)) &&
                                   cAMP > 0 \& r2 > 0 \& r1 < 0 \& Km2 < -1. D_t \& Km1 < -1. cAMP | | |
     \left( D_{t} > 0 \&\& \ \text{W0} > \frac{-1.\text{`cAMP Km2 r1} - 1.\text{`cAMP r1} \ D_{t} + \text{cAMP r2} \ D_{t} + \text{Km1 r2} \ D_{t}}{\text{cAMP r1} - 1.\text{`r2} \ D_{t}} \right. + \\ \left( D_{t} = 0 \&\& \ W_{t} = 0 \&\& \ W_{t} = 0 & \text{cAMP r1} - 1 \&\text{cAMP r2} \ D_{t} = 0 & \text{cAMP r1} + 0 & \text{cAMP r2} \ D_{t} = 0 & \text{cAMP r2} + 0
                                                                         2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                                        cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                                \label{eq:m1} \mbox{Km1} > -\mbox{1.$^{\circ}$ cAMP && cAMP > 0 && r1 > 0 && r2 > 0 && Km2 < -\mbox{1.$^{\circ}$ D_t} \ | \ | \ |
   \left( D_{t} > 0 \, \&\& \, \mbox{W0} > \frac{-\text{1.} \cdot \mbox{cAMP Km2 r1} - \text{1.} \cdot \mbox{cAMP r1} \, D_{t} + \mbox{cAMP r2} \, D_{t} + \mbox{Km1 r2} \, D_{t}}{\mbox{cAMP r1} - \text{1.} \cdot \mbox{r2} \, D_{t}} \right. + \\ \left. \left( \frac{\mbox{cAMP Km2 r1} - \text{1.} \cdot \mbox{r2} \, D_{t}}{\mbox{cAMP r1} - \text{1.} \cdot \mbox{r2} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP Km2 r1} - \text{1.} \cdot \mbox{r2} \, D_{t}}{\mbox{cAMP r1} - \text{1.} \cdot \mbox{r2} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R1} - \mbox{cAMP R2} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3} - \mbox{cAMP R3} \, D_{t}}{\mbox{cAMP R3} \, D_{t}} \right) + \\ \left( \frac{\mbox{cAMP R3}
                                                                         2. ^{^{\circ}}\sqrt{\left(-\left(\left(1.\right)^{^{\circ}}\left(cAMP^{2}\ Km2\ r1\ r2\ D_{\_}t\ +\ cAMP\ Km1\ Km2\ r1\ r2\ D_{\_}t\ +\ cAMP^{2}\ r1\ r2\ D_{\_}t^{2}\ r1\ r2\ D_{\_}t^
                                                                                                                                                                                                                                                                        cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                                   Km1 > -1. cAMP && cAMP > 0 && r2 < 0 && r1 < 0 && Km2 < -1. D_t | |
  \left( \text{D_t} > \text{0 \&\& W0} > \frac{-\text{1.`cAMP Km2 r1} - \text{1.`cAMP r1 D_t} + \text{cAMP r2 D_t} + \text{Km1 r2 D_t}}{\text{cAMP r1} - \text{1.`r2 D_t}} \right. + \left( \text{CAMP r2 D_t} + \text{CAMP r1} - \text{CAMP r1} - \text{CAMP r1} \right) = \frac{-\text{CAMP r2 D_t}}{\text{CAMP r1}} + \frac{
                                                                         2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                                        cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                                Km1 > -1. cAMP && Km2 > -1. D_t && cAMP > 0 && r1 > 0 && r2 < 0
   \left( D_{t} > 0 \, \&\& \, \mbox{W0} > \frac{-\text{1.} \; \mbox{cAMP Km2 r1} - \text{1.} \; \mbox{cAMP r1} \, D_{t} + \mbox{cAMP r2} \, D_{t} + \mbox{Km1 r2} \, D_{t}}{\mbox{cAMP r1} - \text{1.} \; \mbox{r2} \, D_{t}} \right. + \\ \left. \left( D_{t} + D
                                                                         2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                                        CAMP Km1 r1 r2 D_t^2)) / (CAMP r1 - 1. r2 D_t)^2)) &&
                                     Km1 > -1. CAMP && Km2 > -1. D_t && CAMP > 0 && r2 > 0 && r1 < 0
```

```
 \left( D_{-}t > 0 \&\& \ \text{W0} > \frac{-1.\ \text{cAMP Km2 r1} - 1.\ \text{cAMP r1} \, D_{-}t + \text{cAMP r2} \, D_{-}t + \text{Km1 r2} \, D_{-}t}{\text{cAMP r1} - 1.\ \text{r2} \, D_{-}t} \right. + \\ \left. \left( D_{-}t > 0 \&\& \ \text{W0} > \frac{-1.\ \text{cAMP Km2 r1} - 1.\ \text{cAMP r2} \, D_{-}t + \text{cAMP r2} \, D_{-}t}{\text{cAMP r1} - 1.\ \text{cAMP r2} \, D_{-}t} \right) + \\ \left( D_{-}t > 0 \&\& \ \text{W0} > \frac{-1.\ \text{cAMP Km2 r1} - 1.\ \text{cAMP r2} \, D_{-}t + \text{cAMP r2} 
                                                                        2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                                       cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                                \label{eq:m1} \mbox{Km1} \mbox{ > -1. ` cAMP \&\& Km2} \mbox{ > -1. ` D_t \&\& r1} \mbox{ > 0 \&\& r2} \mbox{ > 0 \&\& cAMP < 0 } \mbox{ } \mbox
  \left( \text{D_t} > \text{0 \&\& W0} > \frac{-\text{1.`camp Km2 r1} - \text{1.`camp r1 D_t} + \text{camp r2 D_t} + \text{Km1 r2 D_t}}{\text{camp r1} - \text{1.`r2 D_t}} + \frac{-\text{Camp Km2 r1} - \text{Camp r1}}{\text{camp r1} - \text{Camp r1}} + \frac{-\text{Camp r2 D_t}}{\text{camp r2 D_t}} + \frac{-\text{Camp r2 D_t}}{\text{Camp r1}} + \frac{-\text
                                                                           2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                                       cAMP Km1 r1 r2 D_t<sup>2</sup>)) / (cAMP r1 - 1. ^{2} r2 D_t)<sup>2</sup>)) &&
                                   Km1 > -1. cAMP && Km2 > -1. D_t && r2 < 0 && r1 < 0 && cAMP < 0
  \left( \text{D_t} > \text{0 \&\& W0} > \frac{\text{-1.`cAMP Km2 r1 - 1.`cAMP r1 D_t + cAMP r2 D_t + Km1 r2 D_t}}{\text{cAMP r1 - 1.`r2 D_t}} \right. + \left. \text{-1.`camp km2 r1 - 1.`r2 d_t} \right) = \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 r1 - 1.`r2 d_t}} + \frac{\text{-1.`camp km2 r1 - 1.`r2 d_t}}{\text{-1.`camp km2 
                                                                        2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 r1 r2 D_t^2 + cAMP^2 r1 r2 D_t^2 r1 r2 D_
                                                                                                                                                                                                                                                                       cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                                Km1 > -1. cAMP && r1 > 0 && r2 < 0 && cAMP < 0 && Km2 < -1. D_t | |
  \left( \text{D_t} > \text{0 \&\& W0} > \frac{\text{-1.`camp Km2 r1 - 1.`camp r1 D_t + camp r2 D_t + Km1 r2 D_t}}{\text{camp r1 - 1.`r2 D_t}} \right. + \left. \text{camp camp r1 - 1.`r2 D_t} \right. + \left. \text{camp r2 D_t} \right) = \frac{\text{-1.`camp Km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} + \left. \text{camp r2 D_t} \right) = \frac{\text{-1.`camp Km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} + \frac{\text{-1.`camp Km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} + \frac{\text{-1.`camp r2 D_t}}{\text{-1.`cam
                                                                        2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                                       CAMP Km1 r1 r2 D_t^2)) / (CAMP r1 - 1. r2 D_t)^2)) &&
                                   Km1 > -1. cAMP && r2 > 0 && r1 < 0 && cAMP < 0 && Km2 < -1. D_t
  \left( D_{t} > 0 \text{ \&\& WO} > \frac{-1.\text{`camp Km2 r1} - 1.\text{`camp r1} D_{t} + \text{camp r2} D_{t} + \text{Km1 r2} D_{t}}{\text{camp r1} - 1.\text{`r2} D_{t}} + \frac{1}{1} + \frac{1}{1}
                                                                        2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                                       cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                                \label{eq:km2} \mbox{Km2} > -\mbox{1.} \ \ \mbox{D\_t \&\& cAMP} > 0 \&\& \ \mbox{r1} > 0 \&\& \ \mbox{r2} > 0 \&\& \ \mbox{Km1} < -\mbox{1.} \ \mbox{cAMP} \ \ | \ \ | \ \ |
  \left(D_{t} > 0 \&\& \ WO > \frac{-1.\ camp\ km2\ r1 - 1.\ camp\ r1\ D_{t} + camp\ r2\ D_{t} + km1\ r2\ D_{t}}{camp\ r1} + \frac{1.\ camp\ r1\ D_{t} + camp\ r2\ D_{t} + km1\ r2\ D_{t}}{camp\ r1} + \frac{1.\ camp\ r1\ D_{t} + camp\ r2\ D_{t} + km1\ r2\ D_{t}}{camp\ r1} + \frac{1.\ camp\ r1\ D_{t} + camp\ r2\ D_{t} + km1\ r2\ D_{t}}{camp\ r1} + \frac{1.\ camp\ r1\ D_{t} + camp\ r2\ D_{t} + km1\ r2\ D_{t}}{camp\ r1\ D_{t} + camp\ r2\ D_{t} + km1\ r2\ D_{t}} + \frac{1.\ camp\ r1\ D_{t} + camp\ r2\ D_{t}}{camp\ r1\ D_{t} + camp\ r2\ D_{t} + camp\ r2\ D_{t} + km1\ r2\ D_{t}} + \frac{1.\ camp\ r1\ D_{t}}{camp\ r1\ D_{t} + camp\ r2\ D_{t}} + \frac{1.\ camp\ r1\ D_{t}}{camp\ r1\ D_{t} + camp\ r2\ D_{t}} + \frac{1.\ camp\ r1\ D_{t}}{camp\ r1\ D_{t} + camp\ r2\ D_{t}} + \frac{1.\ camp\ r1\ D_{t}}{camp\ r1\ D_{t}} + \frac{1.\ camp\ r1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cAMP r1 - 1. r2 D t
                                                                        cAMP Km1 r1 r2 D_t<sup>2</sup>)) / (cAMP r1 - 1. ^{2} r2 D_t)<sup>2</sup>)) &&
                                   Km2 > -1. D_t && cAMP > 0 && r2 < 0 && r1 < 0 && Km1 < -1. cAMP | | |
      \left( D_{t} > 0 \&\& \ \text{W0} > \frac{\text{-1.`cAMP Km2 r1 - 1.`cAMP r1} \ D_{t} + \text{cAMP r2} \ D_{t} + \text{Km1 r2} \ D_{t}}{\text{cAMP r1 - 1.`r2} \ D_{t}} + \right) 
                                                                        2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                                       Km2 > -1. D_t && r1 > 0 && r2 < 0 && cAMP < 0 && Km1 < -1. cAMP | | |
  \left( D \ t > 0 \& W0 > \frac{-1.\ cAMP\ Km2\ r1 - 1.\ cAMP\ r1\ D_t + cAMP\ r2\ D_t + Km1\ r2\ D_t}{} \right)
```

```
cAMP r1 - 1. r2 D_t
                                                             2. \sqrt{-((1.)^2 (cAMP^2 Km^2 r^1 r^2 D_t + cAMP Km^1 Km^2 r^1 r^2 D_t + cAMP^2 r^1 r^2 D_t^2 + cAMP^2 r^2 r^2 r^2 D_t^2 + cAMP^2 r^2 r^2 r^2 D_t^2 + cAMP^2 r^2 r^2 r^2 D_t^2 D_t^2 r^2 D_t^2 r^2 D_t^2 D_t^
                                                                                                                                                                                                                                              cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                             Km2 > -1. D_t && r2 > 0 && r1 < 0 && cAMP < 0 && Km1 < -1. cAMP | | |
 \left( \text{D_t > 0 \&\& W0 > } \frac{\text{-1.`camp km2 r1 - 1.`camp r1 D_t + camp r2 D_t + km1 r2 D_t}}{\text{camp r1 - 1.`r2 D_t}} \right. + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`r2 D_t}}{\text{-1.`camp r1 D_t + camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}}} \right) + \\ \left. \frac{\text{-1.`camp km2 r1 - 1.`camp km2 r1 - 1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left. \frac{\text{-1.`camp r2 D_t}}{\text{-1.`camp r2 D_t}} \right) + \\ \left
                                                                  2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                                cAMP Km1 r1 r2 D_t^2)) / (cAMP r1 - 1. r2 D_t)^2)) &&
                                r1 > 0 && r2 > 0 && cAMP < 0 && Km2 < -1.` D_t && Km1 < -1.` cAMP | | |
  \left( \text{D_t} > \text{0 \&\& W0} > \frac{\text{-1.`camp Km2 r1 - 1.`camp r1 D_t + camp r2 D_t + Km1 r2 D_t}}{\text{camp r1 - 1.`r2 D_t}} \right. + \left. \text{camp r2 D_t} \right. + \left. \text{camp r2 D_
                                                                  2. ` \sqrt{\left(-\left(\left(1.\right.\right)\left(\text{cAMP}^2\text{ Km2 r1 r2 D_t} + \text{cAMP Km1 Km2 r1 r2 D_t} + \text{cAMP}^2\text{ r1 r2 D_t}^2 + \right)}
                                                                                                                                                                                                                                                cAMP Km1 r1 r2 D_t^2) / (cAMP r1 - 1. r2 D_t^2) &&
                                r2 < 0 \& r1 < 0 \& cAMP < 0 \& Km2 < -1. D_t & Km1 < -1. cAMP | | |
      D_t > 0 \& r2 < 0 \& r1 < 0 \& cAMP < 0 \& Km2 < -1. D_t \& Km1 < -1. cAMP & CAMP 
                             \label{eq:camp_r1D_t+camp_r2D_t+km1r2D_t} \ \text{W0} < \frac{-1.\ \ \text{camp}\ \text{r1D_t+camp}\ \text{r2D_t+km1}\ \text{r2D_t}}{}
                                                                                                                                                                                                                                                                                                                                                                                          cAMP r1 - 1. r2 D t
                                                                2. \sqrt{(-((1.)(cAMP^2 Km2 r1 r2 D_t + cAMP Km1 Km2 r1 r2 D_t + cAMP^2 r1 r2 D_t^2 + cAMP^2 r1
                                                                                                                                                                                                                                              cAMP Km1 r1 r2 D_{t}^{2}) / (cAMP r1 - 1. r2 D_{t}^{2}))
```

```
(0.5` (-1.` cAMP Km2 r1 + cAMP r1 W0 - 1.` cAMP r1 D t -
           1. cAMP r2 D_t - 1. Km1 r2 D_t - 1. r2 W0 D_t)) / (cAMP r1 - 1. r2 D_t) +
  0.5 \sqrt{(cAMP^2 Km2^2 r1^2 + 2.) cAMP^2 Km2 r1^2 W0 + cAMP^2 r1^2 W0^2 + 2.) cAMP^2 Km2 r1^2 D_t + }
            2. CAMP Km2 r1 r2 D t + 2. CAMP Km1 Km2 r1 r2 D t + 2. CAMP r1 W0 D t -
            2. CAMP r1 r2 W0 D_t - 2. CAMP Km1 r1 r2 W0 D_t - 2. CAMP Km2 r1 r2 W0 D_t -
            2. cAMP r1 r2 W0^2 D_t + cAMP^2 r1^2 D_t^2 + 2. cAMP^2 r1 r2 D_t^2 +
            2. CAMP Km1 r1 r2 D_t<sup>2</sup> + CAMP<sup>2</sup> r2<sup>2</sup> D_t<sup>2</sup> + 2. CAMP Km1 r2<sup>2</sup> D_t<sup>2</sup> + Km1<sup>2</sup> r2<sup>2</sup> D_t<sup>2</sup> -
            2. CAMP r1 r2 W0 D_t<sup>2</sup> + 2. CAMP r2<sup>2</sup> W0 D_t<sup>2</sup> + 2. Km1 r2<sup>2</sup> W0 D_t<sup>2</sup> + r2<sup>2</sup> W0<sup>2</sup> D_t<sup>2</sup>) /
         (CAMP r1 - 1. r2 D_t)^2 if condition -
                                               Byte count: 270 912
                                               Uniconize
```

```
0.5 (-1. cAMP Km2 r1 + cAMP r1 W0 - 1. cAMP r1 D_t - 1. cAMP r2 D_t - 1. Km1 r2 D_t - 1. r2
                                                                                                                                                                                           cAMP r1 - 1. r2 D t
                                                               0.5 \sqrt{\left(\frac{1}{(\text{cAMP r1} - 1. \ \text{r2 D t})^2} \left(\text{cAMP}^2 \ \text{Km2}^2 \ \text{r1}^2 + 2. \ \text{cAMP}^2 \ \text{Km2 r1}^2 \ \text{W0} + \text{cAMP}^2 \ \text{r1}^2 \ \text{W0}^2 + 2. \right)} \right)^2}
                                                                                           Km2 r1^2 D_t + 2. cAMP^2 Km2 r1 r2 D_t + 2. cAMP Km1 Km2 r1 r2 D_t + 2. cAMP^2 r1^2 W6
                                                                                       2. cAMP<sup>2</sup> r1 r2 W0 D_t = 2. cAMP Km1 r1 r2 W0 D_t = 2. cAMP Km2 r1 r2 W0 D_t =
                                                                                       2. cAMP r1 r2 W0^2 D_t + cAMP^2 r1^2 D_t^2 + 2. cAMP^2 r1 r2 D_t^2 + 2. cAMP Km1 r1 r2 D_
                                                                                       cAMP^{2} r2^{2} D t^{2} + 2. cAMP Km1 r2^{2} D t^{2} + Km1^{2} r2^{2} D t^{2} - 2. cAMP r1 r2 W0 D t^{2} +
                                                                                      2. cAMP r2^2 W0 D_t<sup>2</sup> + 2. Km1 r2^2 W0 D_t<sup>2</sup> + r2^2 W0<sup>2</sup> D_t<sup>2</sup>) if condition +
In[33]:= (0.5 (-1. cAMP Km2 r1 + cAMP r1 W0 - 1. cAMP r1 D_t -
                                           1. cAMP r2 D_t - 1. Km1 r2 D_t - 1. r2 W0 D_t)) / (cAMP r1 - 1. r2 D_t) + 0.5
                          \sqrt{\text{(cAMP}^2 Km2^2 r1^2 + 2. cAMP^2 Km2 r1^2 W0 + cAMP^2 r1^2 W0^2 + 2. cAMP^2 Km2 r1^2 D_t + 2. cAMP^2 Km2 r1^2 W0 + cAMP^2 Km2 r1^2 W0^2 + 2. cAMP^2 Km2 r1^2 W0 + 2. cAMP^2 W0 
                                               2. cAMP^2 Km2 r1 r2 D t + 2. cAMP Km1 Km2 r1 r2 D t + 2. cAMP^2 r1^2 W0 D t -
                                               2. cAMP^2 r1 r2 W0 D_t - 2. cAMP Km1 r1 r2 W0 D_t - 2. cAMP Km2 r1 r2 W0 D_t -
```

2. cAMP r1 r2 W0^2 D_t + cAMP^2 r1^2 D_t^2 + 2. cAMP^2 r1 r2 D_t^2 +

2. cAMP Km1 r1 r2 D t^2 + cAMP^2 r2^2 D t^2 + 2. cAMP Km1 r2^2 D t^2 + $Km1^2 r2^2 D_t^2 - 2. cAMP r1 r2 W0 D_t^2 + 2. cAMP r2^2 W0 D_t^2 + 2. cAMP$

2. $Km1 r2^2 W0 D_t^2 + r2^2 W0^2 D_t^2$ / (cAMP r1 - 1. $r2 D_t^2$) / (cAMP r3 - 1. $r2 D_t^2$)

0.5 (-1. cAMP Km2 r1 + cAMP r1 W0 - 1. cAMP r1 D_t - 1. cAMP r2 D_t - 1. Km1 r2 D_t - 1. r2 W0 D_t)

Out[33]=

$$0.5\,\sqrt{\left(\frac{1}{\left(\text{cAMP r1}-\text{1. r2}\,\text{D_t}\right)^{\,2}}\left(\text{cAMP}^{2}\,\text{Km2}^{2}\,\text{r1}^{2}+\text{2. cAMP}^{2}\,\text{Km2}\,\text{r1}^{2}\,\text{W0}+\text{cAMP}^{2}\,\text{r1}^{2}\,\text{W0}^{2}+\text{cAMP}^{2}\,\text{Km2}^{2}\right)^{\,2}}\right)}$$

2. $cAMP^{2} Km2 r1^{2} D_{t} + 2. cAMP^{2} Km2 r1 r2 D_{t} + 2. cAMP Km1 Km2 r1 r2 D_t +$

2. $cAMP^2 r1^2 W0 D t - 2. cAMP^2 r1 r2 W0 D t - 2. cAMP Km1 r1 r2 W0 D t -$

2. cAMP Km2 r1 r2 W0 D_t - 2. cAMP r1 r2 W0 2 D_t + cAMP 2 r1 2 D_t 2 + 2. cAMP 2 r1 r2 D_t 2 +

2. cAMP Km1 r1 r2 D_t^2 + cAMP 2 r2 2 D_t^2 + 2. cAMP Km1 r2 2 D_t^2 + Km1 2 r2 2 D_t^2 -

 $2.\;\text{cAMP}\;\text{r1}\;\text{r2}\;\text{W0}\;\text{D_t}^2\;+\;2.\;\text{cAMP}\;\text{r2}^2\;\text{W0}\;\text{D_t}^2\;+\;2.\;\text{Km1}\;\text{r2}^2\;\text{W0}\;\text{D_t}^2\;+\;\text{r2}^2\;\text{W0}^2\;\text{D_t}^2)$

```
In[34]:= ACt = (0.5` (-1.` cAMP Km2 r1 + cAMP r1 W0 - 1.` cAMP r1 D t -
                                                     1. cAMP r2 D t - 1. Km1 r2 D t - 1. r2 W0 D t)) / (cAMP r1 - 1. r2 D t) +
                             2. CAMP2 Km2 r12 D_t + 2. CAMP2 Km2 r1 r2 D_t + 2. CAMP Km1 Km2 r1 r2 D_t +
                                                     2. CAMP r12 WO D t - 2. CAMP r1 r2 WO D t - 2. CAMP Km1 r1 r2 WO D t -
                                                     2. CAMP Km2 r1 r2 W0 D t - 2. CAMP r1 r2 W0 D t + cAMP r1 r2 D t^2 + 2. CAMP r1 r2 D t^2 +
                                                    2. CAMP Km1 r1 r2 D_t2 + cAMP2 r22 D_t2 + 2. CAMP Km1 r22 D_t2 + Km12 r22 D_t2 -
                                                    2. CAMP r1 r2 W0 D_t<sup>2</sup> + 2. CAMP r2<sup>2</sup> W0 D_t<sup>2</sup> + 2. Km1 r2<sup>2</sup> W0 D_t<sup>2</sup> + r2<sup>2</sup> W0<sup>2</sup> D_t<sup>2</sup>)
                      0.5 (-1. cAMP Km2 r1 + cAMP r1 W0 - 1. cAMP r1 D_t - 1. cAMP r2 D_t - 1. Km1 r2 D_t - 1. r2 W0 D_t)
                                                                                                                                                                cAMP r1 - 1. r2 D_t
                        0.5 \sqrt{\left(\frac{1}{(\text{cAMP r1} - 1. r2 D t)^2} \left(\text{cAMP}^2 \text{ Km2}^2 \text{ r1}^2 + 2. \text{ cAMP}^2 \text{ Km2 r1}^2 \text{ W0} + \text{cAMP}^2 \text{ r1}^2 \text{ W0}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ cAMP}^2 \text{ cAMP}^2 \text{ cAMP}^2 \text{ cAMP}^2 \right)}\right)}
                                                 2. cAMP<sup>2</sup> Km2 r1<sup>2</sup> D_t + 2. cAMP<sup>2</sup> Km2 r1 r2 D_t + 2. cAMP Km1 Km2 r1 r2 D_t +
                                                 2. cAMP^2 r1^2 W0 D t - 2. cAMP^2 r1 r2 W0 D t - 2. cAMP Km1 r1 r2 W0 D t -
                                                 2. cAMP Km2 r1 r2 W0 D_t - 2. cAMP r1 r2 W0^2 D_t + cAMP^2 r1^2 D_t^2 + 2. cAMP^2 r1 r2 D_t^2 +
                                                 2. cAMP Km1 r1 r2 D_t^2 + cAMP^2 r2^2 D_t^2 + 2. cAMP Km1 r2^2 D_t^2 + Km1^2 r2^2 D_t^2 -
                                                2. cAMP r1 r2 W0 D_t^2 + 2. cAMP r2^2 W0 D_t^2 + 2. Km1 r2^2 W0 D_t^2 + r2^2 W0^2 D_t^2)
  In[35]:= ACt
                       0.5 \; (-1.\; \text{cAMP Km2 r1} + \text{cAMP r1 W0} - 1.\; \text{cAMP r1 D\_t} - 1.\; \text{cAMP r2 D\_t} - 1.\; \text{Km1 r2 D\_t} - 1.\; \text{r2 W0 D\_t})
                        0.5 \sqrt{\left(\frac{1}{(\text{cAMP r1} - 1. r2 D t)^2} \left(\text{cAMP}^2 \text{ Km2}^2 \text{ r1}^2 + 2. \text{ cAMP}^2 \text{ Km2 r1}^2 \text{ W0} + \text{cAMP}^2 \text{ r1}^2 \text{ W0}^2 + \frac{1}{2} \text{ Km}^2 \text{ Km}^2 \text{ r1}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ Km}^2 \text{ r1}^2 \text{ W0}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ cAMP}^2 \text{ r1}^2 \text{ W0}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ cAMP}^2 \text{ r1}^2 \text{ w0}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ cAMP}
                                                 2. cAMP^{2} Km2 r1^{2} D_{t} + 2. cAMP^{2} Km2 r1 r2 D_{t} + 2. cAMP Km1 Km2 r1 r2 D_{t} +
                                                 2. cAMP^2 r1^2 W0 D_t - 2. cAMP^2 r1 r2 W0 D_t - 2. cAMP Km1 r1 r2 W0 D_t -
                                                 2. cAMP Km2 r1 r2 W0 D_t - 2. cAMP r1 r2 W0^2 D_t + cAMP^2 r1^2 D_t^2 + 2. cAMP^2 r1 r2 D_t^2 +
                                                 2. cAMP Km1 r1 r2 D_t^2 + cAMP<sup>2</sup> r2<sup>2</sup> D_t^2 + 2. cAMP Km1 r2<sup>2</sup> D_t^2 + Km1<sup>2</sup> r2<sup>2</sup> D_t^2 -
                                                In[36]:= OwnValues[ACt]
Out[36]= \left\{ \text{HoldPattern} \left[ \text{ACt} \right] \Rightarrow \frac{1}{\text{cAMP r1} - 1. r2 D t} 0.5 \right\}
                                        0.5 \sqrt{\left(\frac{1}{(\text{CAMP r1} - 1. r2 D t)^2} \left(\text{cAMP}^2 \text{ Km2}^2 \text{ r1}^2 + 2. \text{ cAMP}^2 \text{ Km2 r1}^2 \text{ W0} + \text{cAMP}^2 \text{ r1}^2 \text{ W0}^2 + \frac{1}{2} \text{ Km2}^2 \text{ r1}^2 + 2. \text{ cAMP}^2 \text{ Km2 r1}^2 \text{ W0}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ r1}^2 \text{ cAMP}^2 \text{ r1}^2 \text{ W0}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ r1}^2 \text{ w0}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ r1}^2 \text{ cAMP}^2 \text{ r1}^2 \text{ w0}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ r1}^2 \text{ cAMP}^2 \text{ r1}^2 \text{ w0}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ r1}^2 \text{ w0}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ r1}^2 \text{ cAMP}^2 \text{ r1}^2 \text{ w0}^2 + \frac{1}{2} \text{ cAMP}^2 \text{ r1}^2 \text{ cAMP}^2 \text{ cAMP}^2 \text{ r1}^2 \text{ cAMP}^2 \text{ cAMP}^2 \text{ r1}^2 \text{ cAMP}^2 
                                                          2. cAMP^{2} Km2 r1^{2} D_{t} + 2. cAMP^{2} Km2 r1 r2 D_{t} + 2. cAMP Km1 Km2 r1 r2 D_{t} +
                                                          2. cAMP^2 r1^2 W0 D_t - 2. cAMP^2 r1 r2 W0 D_t - 2. cAMP Km1 r1 r2 W0 D_t -
                                                          2. cAMP Km2 r1 r2 W0 D t - 2. cAMP r1 r2 W0 D t + cAMP ^2 r1 D t + 2. cAMP ^2 r1 r2 D t + ^2 + 2. cAMP ^2 r1 r2 D t + ^2 + ^2
                                                          2. cAMP Km1 r1 r2 D_t^2 + cAMP<sup>2</sup> r2<sup>2</sup> D_t^2 + 2. cAMP Km1 r2<sup>2</sup> D_t^2 + Km1<sup>2</sup> r2<sup>2</sup> D_t^2 -
                                                         2.\;\mathsf{cAMP}\;\mathsf{r1}\;\mathsf{r2}\;\mathsf{W0}\;\mathsf{D_{t}^2}\;+\;2.\;\mathsf{cAMP}\;\mathsf{r2}^2\;\mathsf{W0}\;\mathsf{D_{t}^2}\;+\;2.\;\mathsf{Km1}\;\mathsf{r2}^2\;\mathsf{W0}\;\mathsf{D_{t}^2}\;+\;\mathsf{r2}^2\;\mathsf{W0}^2\;\mathsf{D_{t}^2})\;\bigg|\,\bigg\}
```

In[37]:= Information[ACt]

Out[37]= Information

 $0.5 \; (-1.\; \text{cAMP Km2 r1} + \text{cAMP r1 W0} - 1.\; \text{cAMP r1 D_t} - 1.\; \text{cAMP r2 D_t} - 1.\; \text{Km1 r2 D_t} - 1.\; \text{r2 W0 D_t})$

$$+ 0.5 \sqrt{\left(\frac{1}{(cAMP \, r1 - 1. \, r2 \, D_{t})^{2}}\right)}$$

 $(cAMP^{2} Km2^{2} r1^{2} + 2. cAMP^{2} Km2 r1^{2} W0 + cAMP^{2} r1^{2} W0^{2} + 2. cAMP^{2} Km2 r1^{2} D t +$

- 2. cAMP² Km2 r1 r2 D_t + 2. cAMP Km1 Km2 r1 r2 D_t + 2. cAMP² r1² W0 D_t -
- 2. cAMP² r1 r2 W0 D t 2. cAMP Km1 r1 r2 W0 D t 2. cAMP Km2 r1 r2 W0 D t -
- 2. cAMP r1 r2 W0 2 D t + cAMP 2 r1 2 D t 2 + 2. cAMP 2 r1 r2 D t 2 + 2. cAMP Km1 r1 r2 D t 2 + $cAMP^{2} r2^{2} D_{t}^{2} + 2. cAMP Km1 r2^{2} D_{t}^{2} + Km1^{2} r2^{2} D_{t}^{2} - 2. cAMP r1 r2 W0 D_{t}^{2} + CAMP$
- 2. cAMP $r2^2$ W0 $D_t^2 + 2$. Km1 $r2^2$ W0 $D_t^2 + r2^2$ W0 2 D_t^2

In[38]:= ACpsimple = Simplify[ACt]

 $cAMP r1 (-0.5 Km2 + 0.5 W0) + (-0.5 cAMP r1 - 0.5 cAMP r2 - 0.5 Km1 r2 - 0.5 r2 W0) D_t$ Out[38]= cAMP r1 - 1. r2 D_t

$$\begin{split} \text{0.5} \sqrt{\left(\frac{1}{\left(\text{cAMP}\,\text{r1-1.}\,\text{r2}\,\text{D_t}\right)^2}\left(\text{cAMP}^2\,\text{r1}^2\,\left(\text{Km2}^2+2.\,\text{Km2}\,\text{W0}+\text{W0}^2\right)+\right.}\\ \text{cAMP}\,\text{r1}\,\left(\text{cAMP}\,\left(2.\,\text{Km2}\,\text{r1}+2.\,\text{Km2}\,\text{r2}+2.\,\text{r1}\,\text{W0}-2.\,\text{r2}\,\text{W0}\right)+\\ \text{r2}\,\left(2.\,\text{Km1}\,\text{Km2}-2.\,\text{Km1}\,\text{W0}-2.\,\text{Km2}\,\text{W0}-2.\,\text{W0}^2\right)\right)\,\text{D_t}+\\ \left(\text{cAMP}^2\,\left(\text{r1}^2+2.\,\text{r1}\,\text{r2}+\text{r2}^2\right)+\text{cAMP}\,\text{r2}\,\left(2.\,\text{Km1}\,\text{r1}+2.\,\text{Km1}\,\text{r2}-2.\,\text{r1}\,\text{W0}+2.\,\text{r2}\,\text{W0}\right)+\\ \text{r2}^2\,\left(\text{Km1}^2+2.\,\text{Km1}\,\text{W0}+\text{W0}^2\right)\right)\,\text{D_t}^2\right) \end{split}$$

In[39]:= ACpsimple

 $\mathsf{cAMP} \ \mathsf{r1} \ (-0.5 \ \mathsf{Km2} + 0.5 \ \mathsf{W0}) \ + \ (-0.5 \ \mathsf{cAMP} \ \mathsf{r1} - 0.5 \ \mathsf{cAMP} \ \mathsf{r2} - 0.5 \ \mathsf{Km1} \ \mathsf{r2} - 0.5 \ \mathsf{r2} \ \mathsf{W0}) \ \mathsf{D_t}$ Out[39]=

$$\begin{split} \text{0.5} \sqrt{\left(\frac{1}{\left(\text{cAMP r1} - 1.\ \text{r2}\ \text{D}_{-}\text{t}\right)^{2}}\left(\text{cAMP}^{2}\ \text{r1}^{2}\ \left(\text{Km2}^{2} + 2.\ \text{Km2}\ \text{W0} + \text{W0}^{2}\right) + \right.} \\ \text{cAMP r1} \left(\text{cAMP (2.}\ \text{Km2}\ \text{r1} + 2.\ \text{Km2}\ \text{r2} + 2.\ \text{r1}\ \text{W0} - 2.\ \text{r2}\ \text{W0}) + \\ \text{r2} \left(2.\ \text{Km1}\ \text{Km2} - 2.\ \text{Km1}\ \text{W0} - 2.\ \text{Km2}\ \text{W0} - 2.\ \text{W0}^{2}\right)\right) \ D_{-}\text{t} + \\ \left(\text{cAMP}^{2} \left(\text{r1}^{2} + 2.\ \text{r1}\ \text{r2} + \text{r2}^{2}\right) + \text{cAMP}\ \text{r2}\left(2.\ \text{Km1}\ \text{r1} + 2.\ \text{Km1}\ \text{r2} - 2.\ \text{r1}\ \text{W0} + 2.\ \text{r2}\ \text{W0}\right) + \\ \text{r2}^{2} \left(\text{Km1}^{2} + 2.\ \text{Km1}\ \text{W0} + \text{W0}^{2}\right)\right) \ D_{-}\text{t}^{2}\right) \end{split}$$