In[163]:=
```
(*Define the parameters*)k = 6;
W0 = 6.57;
W1 = 10;
k1 = 1.09 / k;
k3 = 3.5 / k;
k2 = 5.25 / k;

r1 = 2.13 / k;
r2 = 1.62 / k;
r3 = 0.56 / k;
r4 = 0.94 / k;
Km1 = 1.401430143014302;
Km2 = 5;
Km3 = 5.1;
Km4 = 4.3;
Dvalue = 3.116001600160016;
Et = 1.5;

(*Define the system of equations*)
numerator1 = cAMP * r1 * (-0.5 * Km2 + 0.5 * W0) +
    (-0.5 * cAMP * r1 - 0.5 * cAMP * r2 - 0.5 * Km1 * r2 - 0.5 * r2 * W0) * Dvalue;
denominator1 = cAMP * r1 - 1. * r2 * Dvalue;

numerator2 = cAMP^2 * r1^2 * (Km2^2 + 2. * Km2 * W0 + W0^2) +
    cAMP * r1 * (cAMP * (2. * Km2 * r1 + 2. * Km2 * r2 + 2. * r1 * W0 - 2. * r2 * W0) +
       r2 * (2. * Km1 * Km2 - 2. * Km1 * W0 - 2. * Km2 * W0 - 2. * W0^2)) * Dvalue +
    (cAMP^2 * (r1^2 + 2. * r1 * r2 + r2^2) + cAMP * r2 * (2. * Km1 * r1 + 2. * Km1 * r2 -
          2. * r1 * W0 + 2. * r2 * W0) + r2^2 * (Km1^2 + 2. * Km1 * W0 + W0^2)) * Dvalue^2;
denominator2 = (cAMP * r1 - 1. * r2 * Dvalue)^2;
ACpt = numerator1 / denominator1 - 0.5 * Sqrt[numerator2 / denominator2];

dcAMP = k1 * W0 * ACpt - (k2 * PDEpt + k3) * cAMP;
dPDEpt =
  r3 * cAMP * ((W1 - PDEpt) / Km3 + cAMP + (W1 - PDEpt)) - r4 * Et * PDEpt / (Km4 + PDEpt + Et);

(*Solve for the fixed points*)
fixedPoints = NSolve[{dcAMP == 0, dPDEpt == 0}, {cAMP, PDEpt}]
```

Out[186]=
```
{{PDEpt → -5.92214, cAMP → 5.06393},
 {PDEpt → 0.229533, cAMP → -11.6944}, {PDEpt → 3.24175, cAMP → 0.110175},
 {PDEpt → 3.24175, cAMP → 0.110175}, {PDEpt → 0, cAMP → 0}}
```