```
(* 1 Branch *)
ClearAll["Global`*"]
v1 = DSolve[{v'[t] == -1 / (c1 * (r1 + rd)) * v[t], v[0] == 1}, v[t], t];
id = rd / (rd + r1) * v1;
rd = 1100;
r1 = .001;
c1 = 100;
id;
```

```
(* 2 Branches *)
ClearAll["Global`*"]
sol = DSolve[{c1 * v1'[t] + c2 * v2'[t] == v1[t] / (rd + r1), v2'[t] * c2 ==
      (v2[t] - v1[t]) / r2 + v1[t] (r1 + rd), v1[0] == 1, v2[0] == 1}, {v1[t], v2[t]}, t];
rd = 1100;
vc1 = sol[[All, 1]];
ic1 = rd (rd + r1) * vc1;

r1 = .001;
r2 = .001;
c1 = 100;
c2 = 100;

vc1;
ic1;
```

```
(* 3 Branches *)
ClearAll["Global`*"]
sol =
  DSolve[{c1 * v1'[t] + c2 * v2'[t] + c3 * v3'[t] == v1[t] / (rd + r1), (v3[t] - v2[t]) / r3 ==
      c3 * v3'[t], c2 * v2'[t] == (v3[t] - v2[t]) / r3 - (v2[t] - v1[t]) / r2,
    v3[0] == 1, v2[0] == 1, v1[0] == 1}, {v1[t], v2[t], v3[t]}, t];
rd = 1100;
vc1 = sol[[All, 1]];
ic1 = rd (rd + r1) * vc1;

r1 = .001;
r2 = .001;
r3 = .001;
c1 = 100;
c2 = 100;
c3 = 100;

vc1;
ic1;
```