METHOD RK4

STARTTIME = 0

STOPTIME = 100

DT = 0.02

{ Initial concentrations }

init CA1 = 0.0

init CB1 = 0.0

init CC1 = 0.0

init CA2 = 0.0

init CB2 = 0.0

init CC2 = 0.0

init CA3 = 0.0

init CB3 = 0.0

init CC3 = 0.0

{ Rate constants for reactor 1 }

k1\_1 = 0.1

k2\_1 = 0.05

k3\_1 = 0.2

{ Rate constants for reactor 2 }

k1\_2 = 0.2 { Different rates for reactor 2 }

k2\_2 = 0.1 { Different rates for reactor 2 }

k3\_2 = 0.3 { Different rates for reactor 2 }

{ Rate constants for reactor 3 }

k1\_3 = 0.3 { Different rates for reactor 3 }

k2\_3 = 0.15 { Different rates for reactor 3 }

k3\_3 = 0.4 { Different rates for reactor 3 }

{ Reactor volumes }

V1 = 1.0

V2 = 1.0

V3 = 1.0

{ Flow rates }

F1 = 0.5

F2 = 0.5

F3 = 0.5

{ Mass balance equations for the first reactor }

d/dt(CA1) = (F1/V1)\*(CA0 - CA1) - (k1\_1 \* CA1)

d/dt(CB1) = (F1/V1)\*(CB0 - CB1) + (k1\_1 \* CA1) - (k2\_1 \* CB1)

d/dt(CC1) = (F1/V1)\*(CC0 - CC1) + (k2\_1 \* CB1) - (k3\_1 \* CC1)

{ Mass balance equations for the second reactor }

d/dt(CA2) = (F2/V2)\*(CA1 - CA2) - (k1\_2 \* CA2)

d/dt(CB2) = (F2/V2)\*(CB1 - CB2) + (k1\_2 \* CA2) - (k2\_2 \* CB2)

d/dt(CC2) = (F2/V2)\*(CC1 - CC2) + (k2\_2 \* CB2) - (k3\_2 \* CC2)

{ Mass balance equations for the third reactor }

d/dt(CA3) = (F3/V3)\*(CA2 - CA3) - (k1\_3 \* CA3)

d/dt(CB3) = (F3/V3)\*(CB2 - CB3) + (k1\_3 \* CA3) - (k2\_3 \* CB3)

d/dt(CC3) = (F3/V3)\*(CC2 - CC3) + (k2\_3 \* CB3) - (k3\_3 \* CC3)

{ Initial concentrations }

CA0 = 1.0

CB0 = 0.0

CC0 = 0.0