```
In [7]: using Plots
        #Initial values
        a=0.1
        m=0.7
        x=0
        dx=0.01
        t_val=Float64[]
        a_val=Float64[]
        m_val=Float64[]
        s_val=Float64[]
        while x<19
            da = 1 - a - m - 20*(m^2)*a
            dm = 20*(m^2)*a + 25*(m^{(1.7)})*(a+m-1)
            a = a + da*dx
            m = m + dm*dx
            x = x + dx
            t = 55*x
            s = 1 - a - m
            push!(t_val,t)
            push!(a_val,a)
            push!(m_val,m)
            push!(s_val,s)
        end
        p1 = plot(t_val,a_val, title = "Atomic Fraction")
        p2 = plot(t_val, m_val, title = "Molecular Fraction")
        p3 = plot(t_val, s_val, title = "Stellar Fraction")
        p4 = plot(s_val, m_val, title = "Phase diagram", xlabel = "MF", ylabel = "SF")
        p5 = plot(a_val, m_val, title = "Phase diagram", xlabel = "MF", ylabel = "AF")
        p6 = plot(a_val, s_val, title = "Phase diagram", xlabel = "SF", ylabel = "AF")
        plot(p1,p2,p3)
                                                      Molecular Fraction
                  Atomic Fraction
Out[7]:
                                               0.7
         8.0
                                               0.6
                                               0.5
         0.6
                                               0.4
         0.4
                                               0.3
                                               0.2
         0.2
                                               0.1
                          500
                                       1000
             0
                                                         250
                                                                500
                                                                       750
                                                                             1000
                  Stellar Fraction
         0.7
         0.6
         0.5
         0.4
         0.3
         0.2
         0.1
                   250
                          500
                                 750
                                       1000
In [8]: plot(p4,p5,p6)
                   Phase diagram
                                                         Phase diagram
Out[8]:
           0.7
                                                 0.7 г
                                                 0.6
           0.6
                                                 0.5
           0.5
        S 0.4
0.3
                                              복 <sup>0.4</sup>
                                                 0.2
           0.2
                                                 0.1
           0.1
                 0.1 0.2 0.3 0.4 0.5 0.6 0.7
                                                        0.2
                                                               0.4
                                                                      0.6
                            MF
                                                                  MF
                   Phase diagram
           0.7
           0.6
           0.5
        AF 0.4
           0.3
           0.2
           0.1
                  0.2
                                0.6
                                       8.0
                            SF
In [3]: using Plots
        #Initial values
        a=0.3
        m = 0.4
        x=0
        dx=0.01
        t_val=Float64[]
        a_val=Float64[]
        m_val=Float64[]
        s_val=Float64[]
        while x<44
            da = 1 - a - m - 8*(m^2)*a
            dm = 8*(m^2)*a + 15*(m^(1.5))*(a+m-1)
            a = a + da*dx
            m = m + dm*dx
            x = x + dx
            s = 1 - a - m
            push!(t_val,t)
            push!(a_val,a)
            push!(m_val,m)
            push!(s_val,s)
        p1 = plot(t_val,a_val, title = "Atomic Fraction")
        p2 = plot(t_val, m_val, title = "Molecular Fraction")
        p3 = plot(t_val, s_val, title = "Stellar Fraction")
        plot(p1, p2, p3)
                                                      Molecular Fraction
                  Atomic Fraction
Out[3]:
                                               8.0
         8.0
                                               0.6
         0.6
                                               0.4
         0.4
                                               0.2
         0.2
                                               0.0
                          500
                                  750
                                        1000
                                                         250
                                                                              1000
                                                   0
                                                                500
                                                                       750
                  Stellar Fraction
         0.6
         0.5
         0.4
         0.2
         0.1
         0.0
                   250
                          500
                                        1000
                                 750
In [9]: using Plots
        #Initial values
        a=0.15
        m = 0.15
        x=0
        dx=0.01
        t_val=Float64[]
        a_val=Float64[]
        m_val=Float64[]
        s_val=Float64[]
        while x<50
            da = 1 - a - m - 10*(m^2)*a
            dm = 10*(m^2)*a + 10*(m^(1.0))*(a+m-1)
            a = a + da*dx
            m = m + dm*dx
            x = x + dx
            t = 20*x
            s = 1 - a - m
            push!(t_val,t)
            push!(a_val,a)
            push!(m_val,m)
            push!(s_val,s)
        end
```

p1 = plot(t_val,a_val, title = "Atomic Fraction")
p2 = plot(t_val,m_val, title = "Molecular Fraction")
p3 = plot(t_val,s_val, title = "Stellar Fraction")

plot(p1, p2, p3)

