Clear["Global`*"]
R0 = 2;
k2 = 1.2;
k1 = R0*k2;
xi0 = 1/330000000;
tmax = 500;
sol = NDSolve[
   {xs'[t] == -k1*xs[t]*xi[t],
    xi'[t] == k1*xs[t]*xi[t] - k2*xi[t],
    xr'[t] == k2*xi[t],
    xs[0] == 1 - xi0,
    xi[0] == xi0,
    xr[0] == 0},
   {xs, xi, xr}, {t, 0, tmax}];
Plot[{{xs[t] /. sol, xi[t] /. sol, xr[t] /. sol}, {t, 0, 40},
   Frame -> True, FrameLabel -> {"Time", "Fraction of the population"},
   PlotLegends -> {"Susceptible", "Infected", "Recovered"},
   PlotRange -> {{0, 1}, {0, 1}}, PlotStyle -> {Blue, Darker[Green], Red}];
LogPlot[{{xi[t] /. sol, xr[t] /. sol}, {t, 0, 40}, Frame -> True,
   FrameLabel -> {"Time", "Fraction of the population"}, PlotRange -> {0.000000001, 1},
   PlotStyle -> {Darker[Green], Red}, PlotLegends -> {"Infected", "Recovered"}];
(* This gives the recovered fraction at tmax *)
Print["The fraction recovered t = tmax is xr = ", First[xr[tmax] /. sol], "."]
(* This part finds the peak of xi and the time at which it occurs *)
Print["The peak of infections is xi = ", First[FindMaximum[xi[t] /. sol, {t, 18}]],
   " and it occurred at ", First[Last[FindMaximum[xi[t] /. sol, {t, 18}]]], " weeks."]
The fraction recovered \( t = t_{\text{max}} \) is \( x_r = 0.796812 \).

The peak of infections is \( x_i = 0.153426 \) and it occurred at \( t \to 16.1397 \) weeks.