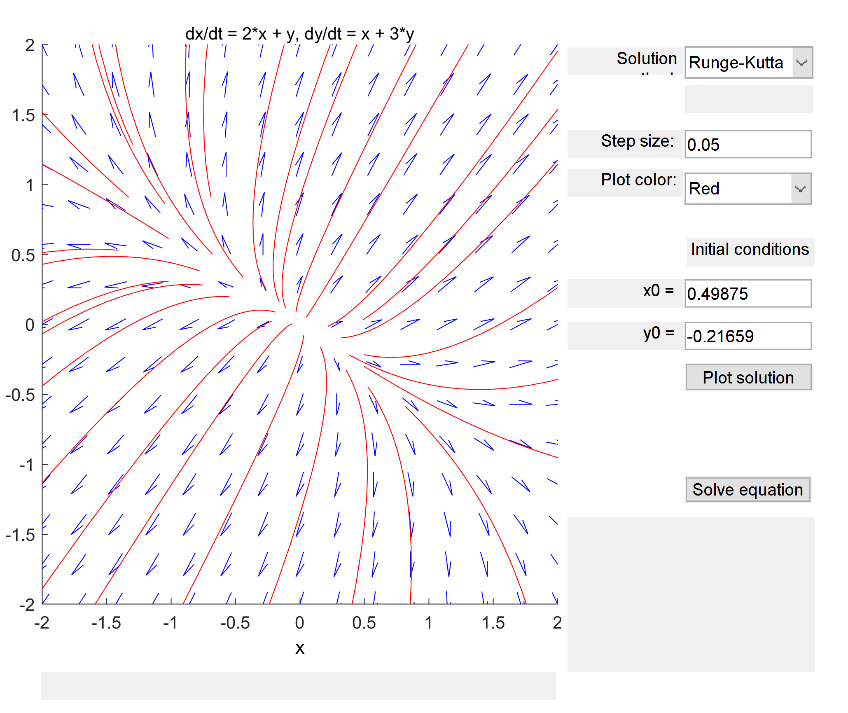
Lab 4 – Question 4

1. ; a)   
   b) Unstable, nodal source.  
   c) . The eigenvalues are both positive and distinct, therefore the equilibrium is an unstable nodal source.
2. ; a) Graphical user interface, chart

   Description automatically generated  
   b) Asymptotically stable, nodal sink.  
   c). The eigenvalues are both negative and distinct, therefore the equilibrium is a stable nodal sink.
3. ;   
   a) Graphical user interface, chart

   Description automatically generated  
   b) Unstable, saddle point.  
   c) . The eigenvalues have opposing signs, therefore the equilibrium is a saddle point and is unstable.
4. ;   
   a) Graphical user interface, chart

   Description automatically generated  
   b) Unstable, saddle point.  
   c). The eigenvalues have opposing signs, therefore the equilibrium is a saddle point and is unstable.
5. ;   
   a) Chart

   Description automatically generated  
   b) Asymptotically stable, spiral sink, counterclockwise movement.  
   c) . We have complex eigenvalues with negative real parts, therefore the equilibrium is a stable spiral sink.
6. ;   
   a) Graphical user interface, chart

   Description automatically generated  
   b) Unstable, spiral source, clockwise movement.  
   c). We have complex eigenvalues with positive real parts, therefore the equilibrium is an unstable spiral source.
7. ;   
   a) Graphical user interface

   Description automatically generated  
   b) Stable, spiral center, clockwise movement.  
   c) . We have complex eigenvalues with real parts equal to 0, therefore the equilibrium is a stable spiral center.
8. ;   
   a) Chart

   Description automatically generated with medium confidence  
   b) Stable, spiral center, counterclockwise movement.  
   c) . We have complex eigenvalues with real parts equal to 0, therefore the equilibrium is a stable spiral center.
9. ;   
   a) Graphical user interface, chart, scatter chart

   Description automatically generated  
   b) Stable, spiral center, clockwise movement.  
   c). We have complex eigenvalues with real parts equal to 0, therefore the equilibrium is a stable spiral center.
10. ;   
    a) Graphical user interface

    Description automatically generated with medium confidence  
    b) Stable, spiral center, counterclockwise movement.  
    c). We have complex eigenvalues with real parts equal to 0, therefore the equilibrium is a stable spiral center.