```
In[•]:= A = {{-2, 1}, {1, -2}}

In[•]:= A // MatrixForm

In[•]:= b = {3, -1}

In[•]:= b // MatrixForm

In[•]:= Eigenvalues[A]

In[•]:= Eigenvectors[A]

In[•]:= X[t_] = {x1[t], x2[t]}

In[•]:= prob = X'[t] == A.X[t] + b

In[•]:= sol = DSolve[{prob, x1[0] == 2, x2[0] == 2}, {x1, x2}, t]

In[•]:= solns = {x1[t], x2[t]} /. sol[[1]]

In[•]:= Plot[Evaluate[solns], {t, 0, 3}]

In[•]:= x[t_] = solns[[1]]

In[•]:= x[2.0]

In[•]:= Plot[x[t], {t, 0, 3}]

In[1]:= SetDirectory[NotebookDirectory[]]

Out[1]= /mnt/d/Academic/math486/src/homework/homework5

In[2]:= Export["homework5-mathematica.pdf", SelectedNotebook[]]

Out[•]= homework5-mathematica.pdf
```