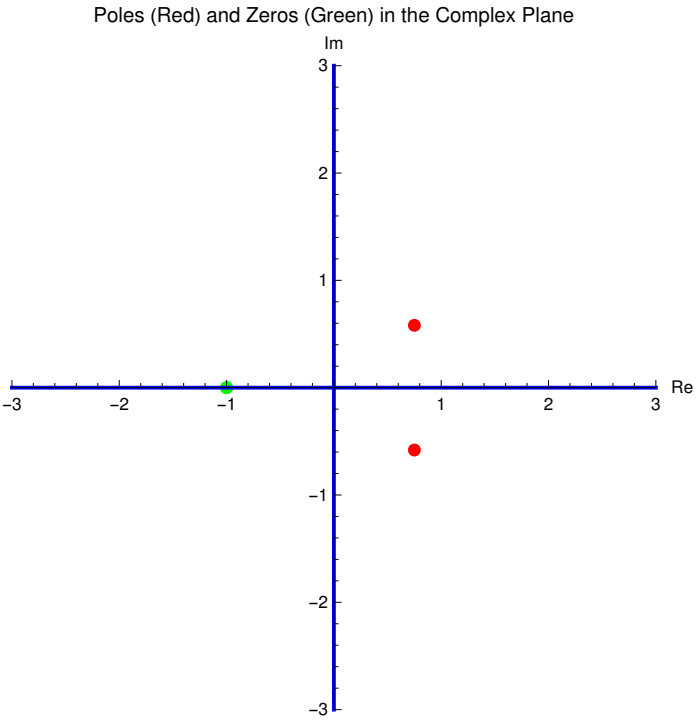
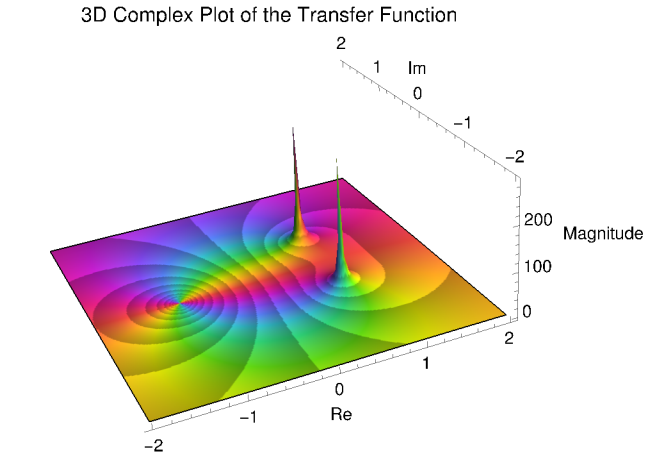
In[35]:=
```
(*Define the transfer function*)
transferFunction = (1 + z)^2 / (9/10 - 3/2 z + z^2);

(*Find poles and zeros*)
poles = Solve[Denominator[Together[transferFunction]] == 0, z];
zeros = Solve[Numerator[Together[transferFunction]] == 0, z];

(*Extract the values*)
poleValues = z /. poles;
zeroValues = z /. zeros;

(*Plotting*)
Graphics[{{Red, PointSize[0.02], Point[ReIm /@ poleValues]},
   {Green, PointSize[0.02], Point[ReIm /@ zeroValues]}, {Blue, Thick, Line[{{-3, 0}, {3, 0}}]},
   (*Real axis*){Blue, Thick, Line[{{0, -3}, {0, 3}}]} (*Imaginary axis*)},
  Axes → True, AxesLabel → {"Re", "Im"}, PlotRange → {{-3, 3}, {-3, 3}},
  PlotLabel → "Poles (Red) and Zeros (Green) in the Complex Plane"]
(*3D Complex Plot*)
ComplexPlot3D[transferFunction, {z, -2 - 2 I, 2 + 2 I}, PlotRange → All,
  AxesLabel → {"Re", "Im", "Magnitude"}, ColorFunction → "CyclicLogAbs", Mesh → None,
  Boxed → False, PlotLabel → "3D Complex Plot of the Transfer Function"]
```

Out[40]=

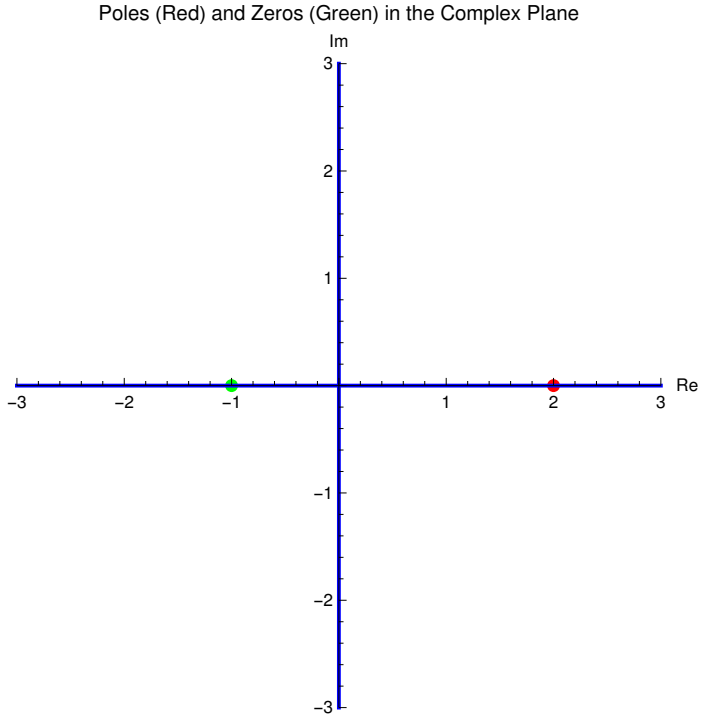

Poles (Red) and Zeros (Green) in the Complex Plane
Im
3
2
1
−1
−2
−3
−3
−2
−1
1
2
3
Re

Out[41]=

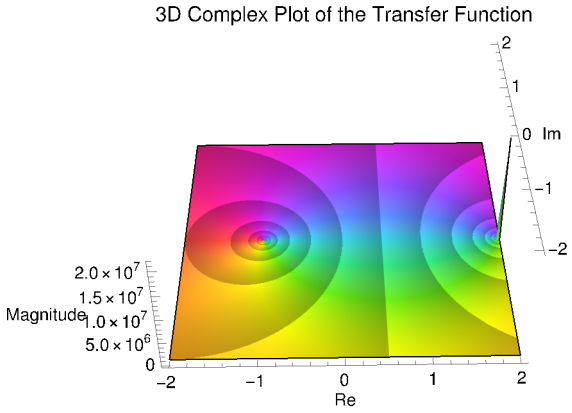

3D Complex Plot of the Transfer Function
2
1
Im
0
−1
−2
200
100
0
Magnitude
2
1
0
Re
−1
−2

In[42]:=
```
(*Define the transfer function*)
transferFunction = (1 + z) / (z - 2);

(*Find poles and zeros*)
poles = Solve[Denominator[Together[transferFunction]] == 0, z];
zeros = Solve[Numerator[Together[transferFunction]] == 0, z];

(*Extract the values*)
poleValues = z /. poles;
zeroValues = z /. zeros;

(*Plotting*)
Graphics[{{Red, PointSize[0.02], Point[ReIm /@ poleValues]},
   {Green, PointSize[0.02], Point[ReIm /@ zeroValues]}, {Blue, Thick, Line[{{-3, 0}, {3, 0}}]},
   (*Real axis*){Blue, Thick, Line[{{0, -3}, {0, 3}}]} (*Imaginary axis*)},
  Axes → True, AxesLabel → {"Re", "Im"}, PlotRange → {{-3, 3}, {-3, 3}},
  PlotLabel → "Poles (Red) and Zeros (Green) in the Complex Plane"]
(*3D Complex Plot*)
ComplexPlot3D[transferFunction, {z, -2 - 2 I, 2 + 2 I}, PlotRange → All,
  AxesLabel → {"Re", "Im", "Magnitude"}, ColorFunction → "CyclicLogAbs", Mesh → None,
  Boxed → False, PlotLabel → "3D Complex Plot of the Transfer Function"]
```

Out[47]=



Out[48]=


3D Complex Plot of the Transfer Function
Magnitude
2.0 × 10^7
1.5 × 10^7
1.0 × 10^7
5.0 × 10^6
0
−2
−1
0
1
2
Re
2
1
0
Im
−1
−2