In[28]:=
```
ClearAll["Global`*"]
```

In[29]:=
```
mat = {{1 - x, 0, 0, 0, 0, a}, {0, 2 - x, 0, 0, 0, a}, {0, 0, 3 - x, 0, 0, a},
   {0, 0, 0, 4 - x, 0, a}, {0, 0, 0, 0, 5 - x, a}, {a, a, a, a, a, 6 - x}};
```

In[30]:=
```
mat // MatrixForm
```

Out[30]//MatrixForm=

$$\begin{pmatrix} 1-x & 0 & 0 & 0 & 0 & a \\ 0 & 2-x & 0 & 0 & 0 & a \\ 0 & 0 & 3-x & 0 & 0 & a \\ 0 & 0 & 0 & 4-x & 0 & a \\ 0 & 0 & 0 & 0 & 5-x & a \\ a & a & a & a & a & 6-x \end{pmatrix}$$

In[31]:=
```
aux2 = {}; For[a = -20, a ≤ 20, a += 0.5,
 sol = NSolve[Det[mat] == 0, x];
 aux = {};
 For[i = 1, i <= Length[sol], i++,
  aux = AppendTo[aux, sol[[i, 1, 2]]]];
 aux2 = AppendTo[aux2, aux]];
aux2
```

Out[32]=
```
{{-40.2704, 1.35663, 2.45705, 3.54458, 4.64474, 49.2674},
 {-39.1537, 1.35669, 2.4571, 3.54461, 4.64476, 48.1505},
 {-38.037, 1.35675, 2.45715, 3.54465, 4.64478, 47.0337},
 {-36.9204, 1.35681, 2.45721, 3.54469, 4.6448, 45.9169},
 {-35.8039, 1.35688, 2.45727, 3.54473, 4.64482, 44.8002},
 {-34.6875, 1.35696, 2.45734, 3.54478, 4.64484, 43.6836},
 {-33.5712, 1.35704, 2.45742, 3.54483, 4.64486, 42.567},
 {-32.455, 1.35713, 2.4575, 3.54489, 4.64489, 41.4506},
 {-31.3389, 1.35723, 2.45759, 3.54495, 4.64492, 40.3342},
 {-30.223, 1.35734, 2.45769, 3.54502, 4.64495, 39.218},
 {-29.1071, 1.35747, 2.45779, 3.54509, 4.64498, 38.1018},
 {-27.9915, 1.3576, 2.45791, 3.54518, 4.64502, 36.9858},
 {-26.876, 1.35775, 2.45805, 3.54527, 4.64507, 35.8699},
 {-25.7607, 1.35791, 2.45819, 3.54537, 4.64511, 34.7541},
 {-24.6457, 1.3581, 2.45836, 3.54548, 4.64517, 33.6386},
 {-23.5309, 1.3583, 2.45855, 3.54561, 4.64523, 32.5232},
 {-22.4164, 1.35854, 2.45875, 3.54576, 4.64529, 31.408},
 {-21.3022, 1.3588, 2.45899, 3.54592, 4.64537, 30.2931},
 {-20.1884, 1.3591, 2.45926, 3.54611, 4.64546, 29.1784},
 {-19.075, 1.35945, 2.45957, 3.54632, 4.64556, 28.0641},
 {-17.962, 1.35985, 2.45993, 3.54657, 4.64567, 26.95},
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 {-15.7381, 1.36086, 2.46083, 3.54719, 4.64596, 24.7232},
 {-14.6272, 1.36151, 2.4614, 3.54758, 4.64615, 23.6106},
 {-13.5174, 1.36229, 2.46209, 3.54805, 4.64637, 22.4986},
 {-12.4087, 1.36322, 2.46292, 3.54862, 4.64663, 21.3873},
 {-11.3015, 1.36437, 2.46393, 3.54931, 4.64695, 20.2769},
 {-10.1961, 1.36579, 2.46518, 3.55017, 4.64735, 19.1676},
 {-9.09303, 1.3676, 2.46677, 3.55125, 4.64786, 18.0596},
 {-7.99303, 1.36993, 2.4688, 3.55264, 4.6485, 16.9532},
 {-6.89712, 1.37301, 2.47147, 3.55445, 4.64935, 15.8488},
 {-5.80685, 1.37722, 2.47508, 3.55689, 4.65048, 14.7472},
 {-4.72468, 1.38317, 2.48013, 3.56028, 4.65206, 13.649},
 {-3.65467, 1.392, 2.48749, 3.56519, 4.65434, 12.5557},
 {-2.60416, 1.40589, 2.49879, 3.57264, 4.65779, 11.469},
 {-1.58745, 1.42959, 2.51735, 3.58472, 4.6634, 10.3924},
```

```
{-0.635752, 1.47459, 2.55061, 3.60596, 4.67329, 9.3313},
{0.177504, 1.56952, 2.616, 3.64737, 4.69295, 8.29666},
{0.716577, 1.75157, 2.74544, 3.73519, 4.73846, 7.31275},
{0.945088, 1.93579, 2.92013, 3.89481, 4.85503, 6.44914},
{1., 2., 3., 4., 5., 6.}, {0.945088, 1.93579, 2.92013, 3.89481, 4.85503, 6.44914},
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{-20.1884, 1.3591, 2.45926, 3.54611, 4.64546, 29.1784},
{-21.3022, 1.3588, 2.45899, 3.54592, 4.64537, 30.2931},
{-22.4164, 1.35854, 2.45875, 3.54576, 4.64529, 31.408},
{-23.5309, 1.3583, 2.45855, 3.54561, 4.64523, 32.5232},
{-24.6457, 1.3581, 2.45836, 3.54548, 4.64517, 33.6386},
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{-35.8039, 1.35688, 2.45727, 3.54473, 4.64482, 44.8002},
{-36.9204, 1.35681, 2.45721, 3.54469, 4.6448, 45.9169},
{-38.037, 1.35675, 2.45715, 3.54465, 4.64478, 47.0337},
{-39.1537, 1.35669, 2.4571, 3.54461, 4.64476, 48.1505},
{-40.2704, 1.35663, 2.45705, 3.54458, 4.64474, 49.2674}}
```