

Метод Жордана, схема единственного деления

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```
In[ ]:= ClearAll[directDevisonMethod]
directDevisonMethod[a_, g_] := Module[
  {m = a, f = g},
  Do[
    If[m[[j, j]] == 0,
      Do[
        If[m[[i, j]] != 0,
          m[[j]] += m[[i]];
          m[[i]] = m[[j]] - m[[i]];
          m[[j]] = m[[j]] - m[[i]];
          m[[j]] += m[[i]];
          f[[i]] = f[[j]] - f[[i]];
          f[[j]] = f[[j]] - f[[i]];
          Break[]],
        {i, Length@m}]]];
    f[[j]] = f[[j]] / m[[j, j]];
    m[[j]] = m[[j]] / m[[j, j]];
    Do[If[i != j, f[[i]] = f[[i]] - f[[j]] * m[[i, j]];
      m[[i]] = m[[i]] - m[[j]] * m[[i, j]], {i, Length@m}],
    {j, Length@m}];
  f
]
```

```
In[ ]:= matr = {{1, 0.17, -0.25, 0.54}, {0.47, 1, 0.67, -0.32},
  {-0.11, 0.35, 1, -0.74}, {0.55, 0.43, 0.36, 1}};
vect = {0.3, 0.5, 0.7, 0.9};
matr // MatrixForm
vect // MatrixForm
```

Out[]//MatrixForm=

$$\begin{pmatrix} 1 & 0.17 & -0.25 & 0.54 \\ 0.47 & 1 & 0.67 & -0.32 \\ -0.11 & 0.35 & 1 & -0.74 \\ 0.55 & 0.43 & 0.36 & 1 \end{pmatrix}$$

Out[]//MatrixForm=

$$\begin{pmatrix} 0.3 \\ 0.5 \\ 0.7 \\ 0.9 \end{pmatrix}$$

```
In[ ]:= directDevisonMethod[matr, vect]
```

```
Out[ ]:= {0.440889, -0.363031, 1.1668, 0.393567}
```

```
In[ ]:= Solve[1 x + 0.17 y - 0.25 z + 0.54 k == 0.3 && 0.47 x + 1 y + 0.67 z - 0.32 k == 0.5 &&
  (-0.11 x) + 0.35 y + 1 z - 0.74 k == 0.7 && 0.55 x + 0.43 y + 0.36 z + 1 k == 0.9, {x, y, z, k}]
```

```
Out[ ]:= {{x -> 0.440889, y -> -0.363031, z -> 1.1668, k -> 0.393567}}
```