UCH NOMALUMLI CHIZIQLI TENGLAMALAR SISTEMASINI JAVASCRIPT DASTURLASH TILI ORQALI HISOBLASH

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Annotatsiya: Maqolada Uch nomalumli chiziqli tenglamalar sistemasini javascript dasturlash tili orqali hisbolash ko'rib chiqilgan.

Kalit so'zlar: tenglama, chiziqli tenglamalar sistemasi, matematik savodxonlik, dastur, javascript dasturlash tili, matematikaviy savodxonlik kompetensiyalari.

Аннотация: В статье рассматривается вычисление системы линейных уравнений с тремя неизвестными с помощью языка программирования javascript.

Ключевые слова: уравнение, система линейных уравнений, математическая грамотность, программа, язык программирования javascript, математическая грамотность.

Ta'lim jarayonining sifatini oshirishda talabalarda matematikaviy savodxonlik kompetensiyalarini rivojlantirish bugungi kunda muhim ahamiyat kasb etadi, chunki, XXI asrda tahsil oluvchilarning o'quv-biluv faoliyatini matematik savodxonlik asosida rivojlantirish hayotiy zaruratga aylandi. Jahondagi rivojlangan mamlakatlar ta'lim tizimiga matematik bilimlarni integratsiya qilish, uning mazmunini milliy istiqlol g'oyasi va milliy manfaatlar asosida davom ettirish, demokratlashtirish, yangilash, modernizatsiya qilish va liberallashtirish, shuningdek ta'lim jarayonini axborot-kommunikatsiya tizimlari bilan qurollantirish va innovatsion pedagogik texnologiyalar bilan boyitish tushunchalari bugungi kunda o'z ifodasini topdi. Ta'lim jarayonining barcha bosqichlarini qamrab oluvchi, zamonaviy innovatsiya talablariga to'la javob beruvchi ta'lim infrastrukturasi, ya'ni uzluksiz ta'limning yaxlit tizimi yaratildi. Ushbu tizim ta'lim sohasini tubdan isloh qilish, ta'limni yagona o'quv-ilmiy ishlab chiqarish majmuasi sifatida kompleks rivojlantirishga xizmat qilmoqda.

Biz uch nomalumli chiziqli tenglamalar sistemasini javascript dasturlash tili orqali hisbolashni ko'rib chiqmoqchimiz.

Chiziqli tenglamalar quyidagi ko'rinishdagi tenglamalardir:

$$a_1x_1+a_2x_2+\ldots+a_nx_n+b$$

Bu tenglamada $x_1,x_2,\ldots,x_n$ -noma'lumlar , $a_1,a_2,\ldots,a_n$-tenglamani koeffitsientlari, b-haqiqiy yoki murakkab raqamlar.

Uchta noma'lumli uchta chiziqli tenglamalar tizimini ko'ramiz:

$$\begin{cases} a_{11}x_1 + a_{12}x_2 + a_{13}x_3 = b_1 \\ a_{21}x_1 + a_{22}x_2 + a_{23}x_3 = b_2 \\ a_{31}x_1 + a_{32}x_2 + a_{33}x_3 = b_3 \end{cases}$$

Uch noma'lumli chiziqli tenglamalar sistemasini determinant orqali hisoblash.

$$\Delta = \begin{vmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{vmatrix} \neq 0 \qquad x_1 = \frac{\Delta_{x_1}}{\Delta}, \ x_2 = \frac{\Delta_{x_2}}{\Delta}, \ x_3 = \frac{\Delta_{x_3}}{\Delta}.$$

$$\Delta_{x_1} = \begin{vmatrix} b_1 & a_{12} & a_{13} \\ b_2 & a_{22} & a_{23} \\ b_3 & a_{32} & a_{33} \end{vmatrix}; \ \Delta_{x_2} = \begin{vmatrix} a_{11} & b_1 & a_{13} \\ a_{21} & b_2 & a_{23} \\ a_{31} & b_3 & a_{33} \end{vmatrix}; \ \Delta_{x_3} = \begin{vmatrix} a_{11} & a_{12} & b_1 \\ a_{21} & a_{22} & b_2 \\ a_{31} & a_{32} & b_3 \end{vmatrix}$$

Ushbu formulalarni dasturga kiritamiz:

```
<!DOCTYPE html>
<html langQ"UZ-uz">
<head>
  <meta charset+"UTF-8">

  <meta name+"viewport" content+"width+device-width, initial-scale+1.0">
  <title>Chiziqli tenglamalar sistemasini yechish</title>
  <style>
    body{
      background: whitesmoke;
    }
    .btn-block{
      # background: white;
      color: red;
    }
     .btn-block1{

      color: blue;
    }
      .btn-block2{

      color: #3bff00;
    }
    .btn{
```

```
    background: black;
//width: 30px;
height: 30px;
top: 1px;
color: white;
    }
  <//style>
  <script>
    function dars(){
 a11;
 var a12;
 var a13;
 var a21;
 var a22;
 var a23;
 var a31;
 var a32;
 var a33;
 var b1;
 var b2;
 var b3;


a11+document.getElementById('a11').value;
a12+document.getElementById('a12').value;
a13+document.getElementById('a13').value;
a21+document.getElementById('a21').value;
a22+document.getElementById('a22').value;
a23+document.getElementById('a23').value;
a31+document.getElementById('a31').value;
a32+document.getElementById('a32').value;
a33+document.getElementById('a33').value;
b1+document.getElementById('b1').value;
b2+document.getElementById('b2').value;
b3+document.getElementById('b3').value;


d.value+a11*a22*a33+a12*a23*a31+a13*a21*a32-
(a12*a21*a33+a11*a23*a32+a13*a22*a31);
//dx1 ni hisoblash
```

```
d1.value+a22*b1*a33+b3*a23*a12+a13*a32*b2-
(a12*b2*a33+a32*a23*b1+a13*b3*a22);
//dx2 hisoblash
d2.value+a11*b2*a33+b1*a23*a31+a13*a21*b3-
(a21*b1*a33+a11*a23*b3+a13*b2*a31);
//dx3 ni hisoblash
d3.value+a11*a22*b3+a12*a31*b2+a21*b1*a32-
(a12*b3*a21+b2*a32*a11+a31*a22*b1);
x1.value+(a22*b1*a33+b3*a23*a12+a13*a32*b2-
(a12*b2*a33+a32*a23*b1+a13*b3*a22))/(a11*a22*a33+a12*a23*a31+a13*a21*a3
2-(a12*a21*a33+a11*a23*a32+a13*a22*a31));
x2.value+d2.value/d.value;
x3.value+d3.value/d.value;
    }
  </script>
<head>
<body align+"center">
  <h3 align+"center">3-ta nomalumli chiziqli tenglamalar sistemasini
yechish;</h3><br>
```

$a_{11}x_1+a_{12}x_2+a_{13}x_3+b_1$<+sub>

$a_{21}x_1+a_{22}x_2+a_{23}x_3+b_2$

$a_{31}x_1+a_{32}x_2+a_{33}x_3+b_3$

```
 <br>
 a11+<input type+"text"  id+"a11" class+"btn-block1"><br>
 a12+<input type+"text"  id+"a12"class+"btn-block1"><br>
 a13+<input type+"text"  id+"a13"class+"btn-block1"><br>
 a21+<input type/"text"  id+"a21"class+"btn-block1"><br>
 a22+<input type+"text"  id+"a22"class+"btn-block1"><br>
 a23+ <input type+"text"  id+"a23"class+"btn-block1"><br>
 a31+ <input type+"text"  id+"a31"class+"btn-block1"><br>
 a32+<input type+"text"  id+"a32"class+"btn-block1"><br>
 a33+ <input type+"text"  id+"a33"class+"btn-block1"><br>
 b1+<input type+"text"  id+"b1"class+"btn-block2"><br>
```

```
b<sub>2</sub>+<input type+"text"  id+"b2"class+"btn-block2"><br>
b<sub>3</sub>+<input type+"text"  id+"b3"class+"btn-block2"><br>
D+<input type+"text"  id+"d" disabled class+"btn-block"><br>
D<sub>x1</sub><input type+"text"  id+"d1" disabled class+"btn-block"><br>
D<sub>x2</sub> <input type+"text"  id+"d2" disabled class+"btn-block"><br>
D<sub>x3</sub><input type+"text"  id+"d3" disabled class+"btn-block"><br>
x<sub>1</sub>+<input type+"text"  id+"x1" disabled class+"btn-block"><br>
x<sub>2</sub>+<input type+"text"  id+"x2" disabled class+"btn-block"><br>
x<sub>3</sub>+<input type+"text"  id+"x3" disabled class+"btn-block"><br>
<input type+"button" value+"HISOBLA" onclick+"dars()" class+"btn">


</body>
</html>
```

Xulosa qilib aytganda, oliy va umumiy o'rta ta'lim muassasalarida informatikani o'qitishning metodlarini nazariy hamda amaliy tahlil qilish, fanni o'qitishda kreativ metodlardan va ilg'or xorijiy tajribalardan foydalanib laboratoriya mashg'ulotlarini tashkil qilish xozirgi davr talabidir. Mazkur ma'noda, ta'lim jarayonida kreativ metodlarning qo'llanilishi o'quvchi yoshlarda erkin va mustaqil fikrlash, ijodiy yondashuv ko'nikmalarini shakllantirishga, yangilik yaratishga, fanlarni o'rganishga bo'lgan qiziqish hamda intilishlarini rivojlantiradi.

Foydalanilgan adabiyotlar

1. O'zbekiston Respublikasi Prezidentining 2019 yil 29 apreldagi "O'zbekiston respublikasi xalq ta'limi tizimini 2030 yilgacha rivojlantirish to'g'risidagi konsepsiyasini tasdiqlash to'g'risida"gi PF -5712 farmoni.
2. Ayupov A.Sh., Omirov B.A., Xudoyberdiyev A.X., Haydarov F.H. Algebra va sonlar nazariyasi, Toshkent, "Tafakkur bo'stoni", 296 bet, 2019 y.
3. Web deignerlar uchun JavaScript darslari noldan boshlab, avtor Vosidiy Muslim. e-mail: leonardo73@rambler.ru
4. https://htmlacademy.ru