!!! ATENȚIE !!!

Aceste rezolvări NU au fost aprobate de MINISTERUL EDUCAȚIEI sau altă comisie recunoscută de Ministerul Educației. În consecință nimeni nu își asumă răspunderea pentru eventualele greșeli și / sau perderi survenite în urma folosirii lor!

Folosește rezolvările pe riscul tău !!!

Dacă găsești greșeli sau ai nelămuriri în legătură cu o anumită rezolvare trimite-mi un e-mail pe adresa raducu@trei.ro și voi încerca să lămuresc / corectez problema.

Varianta 1:

1. c **2.** d

3.
```
c.x=float(a.x+b.x) / 2;
c.y=float(a.y+b.y) / 2;
```

4. Înălțimea arborelui: 3;
Frunze: 1, 2, 3, 8

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, a[11][11];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    for(i=1; i<=n; i++)
      for(j=1; j<=m; j++)
        if (i<j)
           a[i][j]=i;
         else a[i][j]=j;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=m; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 2:

1. a **2.** c **3.** 5 si 2

4.
```
if ( a[k][j] % 2 == 1 )
    s += a[k][j];
if ( a[k][n / 2 +j] % 2 == 1 )
    s += a[k][n / 2 +j];
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i;   char cuv[21];
```

```
int main(int argc, char *argv[])
{
   cout<<" cuvantul: "; cin.get(cuv,20);
   for(i=0; i<strlen(cuv); i++)
    if ( (cuv[i] == 'a') || (cuv[i] == 'e') || (cuv[i] == 'i') || (cuv[i] == 'o') || (cuv[i] == 'u') )
      cuv[i]=toupper(cuv[i]);
   cout<<cuv<<endl;
   system("PAUSE");
   return EXIT_SUCCESS;
}
```

Varianta 3:

1. b **2.** c **4.** ideale

3.
```
f.x=f1.x*f2.y+f1.y*f2.x;
f.y=f1.y*f2.y;
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[11][11];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          a[i][j]=n-j+1;
          if (i == j)
             a[i][j]=0;
        }
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 4:

1. b **2.** a **3.**

2
1

4.
```
if ( (s[i] >= 'a') && (s[i] <= 'z') )
    {
       for(j=i; j<strlen(s); j++)
         s[j]=s[j+1];
    }
    else i++;
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[11][11];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          a[i][j]=n-i+1;
          if (i+j == n+1)
             a[i][j]=0;
        }
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 5:

1. b **2.** d **3.** 14 frunze

4.
```
c=s[i];  s[i]=s[j];  s[j]=c;
i++;
j--;
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, a[11][11];

int main(int argc, char *argv[])
{
```

```
      cout<<" n= "; cin>>n;
      cout<<" m= "; cin>>m;
      for(i=1; i<=n; i++)
        for(j=1; j<=m; j++)
          {
             if (i<j)
                a[i][j]=j;
              else a[i][j]=i;
          }
      for(i=1; i<=n; i++)
        {
          for(j=1; j<=m; j++)
            cout<<a[i][j]<<"  ";
          cout<<endl;
        }
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 6:

1. c **2.** a **3.** 12 noduri **4.** 8

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i;  char s[256];

int main(int argc, char *argv[])
{
    cout<<" textul: "; cin.get(s,255);
    for(i=1; i<strlen(s); i++)
       if ( (s[i-1] == ' ') && (s[i] != ' ') )
          s[i]=toupper(s[i]);
    if (s[0] != ' ')  s[0]=toupper(s[0]);
    cout<<s <<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 7:

1. a **2.** b **3.** 2 **4.** 128

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;
```

```
int i, ic; char s[256], c;
int main(int argc, char *argv[])
{
    cout<<" textul: "; cin.get(s,255);
    for(i=1; i<strlen(s); i++)
      if ( (s[i] != 'a') && (s[i] != 'e') && (s[i] != 'i') && (s[i] != 'o') && (s[i] != 'u') )
        ic=i;
    for(i=ic; i<strlen(s); i++)
      s[i]=s[i+1];
    cout<<" s: "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 8:

1. b **2.** c **3.** abefgh

4.
```
s=p->info;
p->urm!=NULL
```

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j, n, p, k, a[11][11];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" p= "; cin>>p;
    k=-1;
    for(i=1; i<=n; i++)
      for(j=1; j<=p; j++)
        {
          k += 2;
          a[i][j]=k*k;
        }
      for(i=1; i<=n; i++)
      {
        for(j=1; j<=p; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 9:

1. a **2.** a **3.** 4 **4.** abcd123efg

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, s, a[11][11];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
        cout<<" A["<<i<<"]["<<j<<"]= ";
        cin>>a[i][j];
        }
    s=0;
    for(i=1; i<=n; i++)
      cout<<a[1][i]<<" ";
    for(i=2; i<=n-1; i++)
      cout<<a[i][n]<<" ";
    for(i=n; i>=1; i--)
      cout<<a[n][i]<<" ";
    for(i=n-1; i>=2; i--)
      cout<<a[i][1]<<" ";
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 10:

1. a **2.** d **3.** 3481 **4.** abcde

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, p, k, a[11][11];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" p= "; cin>>p;
    k=-2;
    for(i=1; i<=n; i++)
      for(j=1; j<=p; j++)
        {
          k += 2;
```

```
            a[i][j]=k*k;
          }
      for(i=1; i<=n; i++)
        {
          for(j=1; j<=p; j++)
            cout<<a[i][j]<<"  ";
          cout<<endl;
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 11:

1. a **2.** d **3.** 11 brcdbr

4.
```
p->nr + p->urm->nr + p->urm->urm->nr
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, a[11][11];

int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        {
        cout<<" A["<<i<<"]["<<j<<"]= ";
        cin>>a[i][j];
        }
    int max=0;
    for(i=1; i<=m; i++)
      {
        int min=a[i][1];
        for(j=2; j<=n; j++)
          if (min>a[i][j])
             min=a[i][j];
        if (min>max)
            max=min;
      }
  cout<<" max= "<<max<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 12:

1. b **2.** a **4.** 11 AbcdEfghOId

3.
```
struct elev{
               char nume[31];
               int nota1, nota2, nota3;
            } e;
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, a[11][11];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i+j == n+1)
           a[i][j]=0;
          else if (i+j < n+1)
                  a[i][j]=i;
                 else a[i][j]=n-j+1;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 13:

1. c **2.** b **4.** 11 bcdfghd

3.
```
1: 2, 3
2: 1, 4
3: 1, 4
4: 2, 3, 5, 6
5: 4, 6
6: 4, 5
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[11][11];
```

```
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i+j == n+1)
          a[i][j]=0;
          else if (i+j < n+1)
                  a[i][j]=j;
                else a[i][j]=i;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 14:

1. b **2.** b **4.** 2 3 4 6

3. Radacina 2; Descendenții direcți: 4, 6, 9

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[5][5];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(j=1; j<=4; j++)
      {
        for(i=1; i<=4; i++)
          a[i][j]=n % 10;
        n /= 10;
      };
    for(i=1; i<=4; i++)
      {
        for(j=1; j<=4; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 15:

1. c **2.** c **3.** bemeut

4. Gradul minim este: 2
Nodurile cu gradul minim sunt: 5 7 8

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, n1, a[6][6];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    n1=n;
    for(i=1; i<=6; i++)
      {
        for(j=i; j<=6; j++)
          if (i == j)
             a[i][j]=0;
            else a[i][j]= n1 % 10;
        n1 /= 10;
      }
    n1=n;
    for(j=1; j<=5; j++)
      {
        for(i=j+1; i<=6; i++)
          a[i][j]=n1 % 10;
        n1 /= 10;
      }
    for(i=1; i<=6; i++)
      {
        for(j=1; j<=6; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 16:

1. b **2.** a

3. **(** `(x3.nr+x->urm->mr)/2 <= 4.75 )`

4. CLASA A-XII-A A

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, n1, a[17][17];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          if ( (i == j) || (i+j == n+1) )
             a[i][j]=0;
            else if ( (i<j) && (i<n+1-j) )
                    a[i][j]=1;
                  else if ( (i>j) && (i>n+1-j) )
                          a[i][j]=2;
                        else a[i][j]=3;
        }
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 17:

1. a **2.** b **3.** Maxim n-1 şi minim 1

4.
```
11
******
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

long i, j, n; int a[17][17];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        a[i][j]=i+j-1;
    for(i=1; i<=n; i++)
      {
```

```
          for(j=1; j<=n; j++)
            cout<<a[i][j]<<"  ";
          cout<<endl;
        }
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 18:

1. c **2.** a **3.** Înălțimea minimă: 3; Frunze 4

4.
```
a='informatica';
for(i=0; i<strlen(a); i++)
  if ( (s[i] == 'a') || (s[i] == 'e') || (s[i] == 'i') || (s[i] == 'o') || (s[i] == 'u') )
     cout<<"*";
    else  cout<<a[i];
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[21][21];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i % 2 == 1)
           a[i][j]=i;
          else a[i][j]=j;
     for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 19:

1. a **2.** c **3.** bac2008 bac **4.** 5 şi 4

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;
```

```
int i, j, n, a[21][21];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i % 2 == 1)
           a[i][j]=i+j;
          else{
                 int min=a[i-1][j];
                 if ( (min>a[i-1][j-1]) && (j>1) )
                    min=a[i-1][j-1];
                 if ( (min>a[i-1][j+1]) && (j<n) )
                   min=a[i-1][j+1];
                 a[i][j]=min;
               }
     for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 20:

1. a **2.** d **3.** 5 4 (fiecare val pe o linie)

4. (((a[i] >= 'a') && (a[i] <= 'z')) || ((a[i] >= 'A') && (a[i] <= 'Z')))

5.

```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j, n, a[21][21];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if ( (i == 1) || (j == 1) )
           a[i][j]=i+j;
          else a[i][j]=a[i-1][j-1]+a[i-1][j]+a[i-1][j+1];
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
```

```
          cout<<endl;
        }
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 21:

1. d **2.** c **3.** ev.data_nasterii.an **4.** 4

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i;  char s[256];

int main(int argc, char *argv[])
{
    cout<<" Textul: "; cin.get(s,255);
    for(i=0; i<strlen(s)-1; i++)
      if ( s[i] == s[i+1] )
         cout<<s[i]<<s[i+1]<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 22:

1. b **2.** a **3.** 5 **4.** 4

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, k, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    k=m*n;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        a[i][j]=k--;
    for(i=1; i<=m; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
```

```
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 23:

1. b **2.** d **3.** lantul maxim are 3 muchii **4.** 300

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        if ( (i == 1) || (j == 1) )
           a[i][j]=i+j-1;
         else a[i][j]=a[i-1][j]+a[i][j-1];
    cout<<"Elementul solicitat este: "<<a[m][n]<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 24:

1. a **2.** c **3.** `delete(s,2,1;`

4.
```
for(i=1; i<=n; i++)
  for(j=1; j<=n; j++)
    {
      a[i][j]=(i+j-1) % n;
      if (a[i][j] == 0)
         a[i][j]=n;
    };
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j;   char s[101], s1[101], s2[101];

int main(int argc, char *argv[])
{
    cout<<" Cuvantul 1: "; cin.get(s1,100);cin.get();
    cout<<" Cuvantul 2: "; cin.get(s2,100);cin.get();
```

```
      i=strlen(s1)-1;
      j=strlen(s2)-1;
      while ( (i>=0) && (j>=0) && (s1[i] == s2[j]) )
        {
           i--;  j--;
        }
      for(j=i+1; j<=strlen(s1); j++)
        s[j-i-1]=s1[j];
      cout<<" sufixul: "<<s<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 25:

1. c **2.** d **3.** `y= sqrt(x)+1/x+abs(x);`

4.
```
ok=1;
for(i=0; i<strlen(s) / 2; i++)
  if (s[i] != s[n-i+1])
     ok=0;
if (ok)
   cout<<" CORECT";
  else cout<<" INCORECT";
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, p, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        {
        cout<<" A["<<i<<"]["<<j<<"]= ";
        cin>>a[i][j];
        }
    int max=0;
    for(j=1; j<=n; j++)
      {
        p=a[1][j];
        for(i=2; i<=m; i++)
          p *= a[i][j];
        if (p > max)
           max=p;
      }
```

```
      for(j=1; j<=n; j++)
        {
          p=a[1][j];
          for(i=2; i<=m; i++)
            p *= a[i][j];
          if (p == max)
             cout<<j<<" ";
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 26:

1. d **2.** c **3.** `roton` **4.** 4 elem.

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, p, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
        cout<<" A["<<i<<"]["<<j<<"]= ";
        cin>>a[i][j];
        }
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          p=1;
          for(k=1; k<=n; k++)
            if (k != i)  p *= a[k][j];
          if (p == a[i][j])
             cout<<p<<" ";
        }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 27:

1. a **2.** b **4.** 120

3.
```
H.x=F.x*G.y+F.y*G.x;
H.y=F.y*G.y;
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if ( (i == 1) || (j == 1) || (j == n) )
           a[i][j]=1;
          else a[i][j]=a[i-1][j-1]+a[i-1][j]+a[i-1][j+1];
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 28:

1. b **2.** c **3.** 0 **4.** 2, 3, 4, 5, 1

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j;   char s[11], s1[11], s2[11];

int main(int argc, char *argv[])
{
    cout<<" s1= "; cin.get(s1,10);
    strcpy(s2,s1);
    for(i=0; i<strlen(s2); i++)
      if (s2[i] == 'a')
         for(j=i; j<strlen(s2); j++)
           s2[j]=s2[j+1];
    if (s1 != s2)  cout<<s2<<endl;
    strcpy(s2,s1);
    for(i=0; i<strlen(s2); i++)
      if (s2[i] == 'e')
         for(j=i; j<strlen(s2); j++)
```

```
            s2[j]=s2[j+1];
      if (s1 != s2)  cout<<s2<<endl;
      strcpy(s2,s1);
      for(i=0; i<strlen(s2); i++)
        if (s2[i] == 'i')
           for(j=i; j<strlen(s2); j++)
             s2[j]=s2[j+1];
      if (s1 != s2)  cout<<s2<<endl;
      strcpy(s2,s1);
      for(i=0; i<strlen(s2); i++)
        if (s2[i] == 'o')
           for(j=i; j<strlen(s2); j++)
             s2[j]=s2[j+1];
      if (s1 != s2)  cout<<s2<<endl;
      strcpy(s2,s1);
      for(i=0; i<strlen(s2); i++)
        if (s2[i] == 'u')
           for(j=i; j<strlen(s2); j++)
             s2[j]=s2[j+1];
      if (s1 != s2)  cout<<s2<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 29:

1. a **2.** d **3.** atac **4.** 7

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, ok, a[101][101];   double pp, p;

int main(int argc, char *argv[])
{
   cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
        cout<<" A["<<i<<"]["<<j<<"]= ";
        cin>>a[i][j];
        }
    pp=1;
    for(j=1; j<=n; j++)
      {
        p=double(a[1][j]) / a[1][1];
        ok=1;
        for(i=2; i<=n; i++)
          if (double(a[i][j])/a[i][1] != p)
```

```
                ok=0;
            if ( (ok) && (p-int(p) == 0) )
               pp *=p;
          }
        cout<<int(pp)<<" "<<endl;
        system("PAUSE");
        return EXIT_SUCCESS;
    }
```

Varianta 30:

1. b **2.** a **3.** 2 3 4 5 **4.** a treia poziție

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[21][21];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if ( (i == 1) || (j == 1) )
           a[i][j]=1;
          else a[i][j]=a[i][j-1]+a[i-1][j];
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 31:

1. c **2.** b **4.** 5, 7, 9, 11

3.
```
struct masina{
               char marca[21];
               int anul_fabricatiei
              };
```

5.
```
#include <cstdlib>
#include <iostream>
```

```
using namespace std;
struct lista{
             char info[256];
             lista *urm;
            } *varf, *p;
char cuv[256];
int main(int argc, char *argv[])
{
    varf=NULL;
    cout<<" n= "; cin>>n;cin.get();
    for(i=1; i<=n; i++)
      {
        cout<<" Cuv: ";  cin.get(cuv,250);cin.get();
        if (cuv[0] == cuv[strlen(cuv)-1] )
           {
               p = new lista;
               strcpy(p->info, cuv);
               p->urm=varf;
               varf=p;
           }
      }
    p=varf;
    while (p!=NULL)
      {
        cout<<p->info<<" ";
        p=p->urm;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 32:

1. b **2.** d **3.** 8

4. 3, 4, 5, 6, 7, 8

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i;  char c1, c2, s[256];
int main(int argc, char *argv[])
{
    cout<<" c1= "; cin>>c1;
    cout<<" c2= "; cin>>c2;  cin.get();
    cout<<" s= "; cin.get(s,250);
```

```
      cout<<s<<endl;
      for(i=0; i<strlen(s); i++)
        {
          if (s[i] == c1)
             s[i]=c2;
           else if (s[i] == c2)
                   s[i]=c1;
        };
      cout<<s<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 33:

1. a **2.** c

3.
```
struct cerc{
             int x,y;
             double raza;
            } x;
```

4.
```
 2  3  4
 5  6  7
 8  9 10
11 12 13
14 15 16
```

5.
```
struct lista {
              double info;
              lista *urm, *prec;
             } *prim, *p, *q;


  p=prim;
  while (p!=NULL)
    {
      if (p->info<0)
         {
            q = new lista;
            q->info=0;
            q->prec=p;
            q->urm=p->urm;
            p->urm->prec=q;
            p->urm=q;
         };
      p=p->urm;
    }
  p=prim;
```

```
while (p!=NULL)
  {
     cout<<p->info<<" ";
     p=p->urm;
  }
```

Varianta 34:

1. b **2.** b **3.** 9 **4.** 222

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[21][21];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    k=0;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          if (k % 3 == 0)
             k += 2;
          a[i][j]=k;
          k += 2;
        }
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 35:

1. d **2.** c **3.** r

4. Graful are 5 componente conexe.
Trebuie adaugate 4 muchii ca graful sa devina conex.

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;
```

```
int i, j, n, a[101][101];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
        cout<<" A["<<i<<"]["<<j<<"]= ";
        cin>>a[i][j];
        }
    for(j=1; j<=n; j++)
      {
        int min=a[1][j];
        for(i=1; i<=n; i++)
          if (a[i][j]<min)
             min=a[i][j];
        cout<<min<<" ";
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 36:

1. b **2.** c **3.** 3 **4.** 171

5.

```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j, n, m, a[101][101];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    for(i=1; i<=n; i++)
      for(j=1; j<=m; j++)
        {
        cout<<" A["<<i<<"]["<<j<<"]= ";
        cin>>a[i][j];
        }
    for(j=1; j<=m; j++)
      {
        int min=a[1][j];
        for(i=1; i<=n; i++)
          if (a[i][j]<min)
             min=a[i][j];
        cout<<min<<" ";
```

```
        };
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 37:

1. d **2.** b **4.** $d^-(1)=3$; $d^+(5)=2$

3.
```
0 1 0 1 1
1 0 1 0 0
0 0 0 1 0
0 0 0 0 1
1 0 0 0 0
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i;  char s[256];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,255);
    if (s[0]!=' ')
       s[0]=toupper(s[0]);
    for(i=1; i<strlen(s); i++)
      {
        if ( (s[i-1] == ' ') && (s[i] != ' ') )
           s[i]=toupper(s[i]);
        if ( (s[i-1] != ' ') && (s[i] == ' ') )
           s[i-1]=toupper(s[i-1]);
      }
    if (s[strlen(s)-1] != ' ')
       s[strlen(s)-1]=toupper(s[strlen(s)-1]);
    cout<<" s= "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 38:

1. c **2.** d **3.** 2 muchii **4.** 6 cicluri

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;
```

```
int i, j, n, m, p, a[31][31];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
        cout<<" A["<<i<<"]["<<j<<"]= ";
        cin>>a[i][j];
        }
    p=1;
    for(j=1; j<=n; j++)
      {
        int imin=1;
        for(i=1; i<=n; i++)
          if (a[i][j]<a[imin][j])
             imin=i;
        if (a[imin][j] == a[n+1-j][j])
           p *= a[imin][j];
      }
    cout<<" p= "<<p<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 39:

1. b **2.** c **3.** 144

4.
```
234
345
456
```

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j, i1;    char aux, s[256];
int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,255);
    if ( (s[0] == 'a' ) || ( s[0] == 'e' ) || ( s[0] == 'i' ) || ( s[0] == 'o' ) || ( s[0] == 'u' ) )
       {
           j=0;
           while ( (s[j+1] != ' ') && (j<strlen(s)) )
                j++;
           i1=0;
           while (i1<j)
```

```
                {
                   aux=s[i1];
                   s[i1]=s[j];
                   s[j]=aux;
                   i1++; j--;
                }
          }
      for(i=1; i<strlen(s); i++)
        if ( (s[i-1] == ' ') && (s[i] != ' ') )
           if ( (s[i] == 'a') || (s[i] == 'e') || (s[i] == 'i') || (s[i] == 'o') || (s[i] == 'u') )
              {
                 j=i;
                 while ( (s[j+1] != ' ') && (j<strlen(s)) )
                    j++;
                 i1=i;
                 while (i1<j)
                   {
                      aux=s[i1];
                      s[i1]=s[j];
                      s[j]=aux;
                      i1++; j--;
                   }
              }
      cout<<" s= "<<s<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 40:

1. d **2.** b **3.** 3 componente conexe

4.
```
111
122
123
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, ok;   char s[256], s1[256];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,255);
    strcpy(s1,s);
    i=0;
    while (s1[i] != '*')  i++;
    s1[i]=0;
    i=0;
```

```
      do{
         ok=1;
         for(j=0; j<strlen(s1); j++)
           if (s[j+i] != s1[j])
             ok=0;
         if (ok)
            for(j=i; j<strlen(s)-strlen(s1)+1; j++)
               s[j]=s[j+strlen(s1)];
         i++;
       }while (i <=strlen(s)-strlen(s1)+1);
      cout<<" s= "<<s<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 41:

1. a **2.** a **3.** Nodurile 1,3,5,7,9 sunt frunze **4.** info

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[31][31];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        a[i][j]=i+j;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 42:

1. a **2.** a **3.** 3 noduri **4.** elementul a[4][5]=5

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;
```

```
int i;   char s[41];
int main(int argc, char *argv[])
{
  cout<<" s= "; cin.get(s,40);
  for(i=0; i<strlen(s); i++)
    if ( (s[i] == 'a') || (s[i] == 'e') || (s[i] == 'i') || (s[i] == 'o') || (s[i] == 'u') )
        cout<<s[i]<<" ";
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 43:

1. a **2.** a **4.** inmatica

3. Nodul 4 – radăcină / 5 noduri frunză (1, 3, 5, 7, 9)

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j, n, a[33][33];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i == j)
           a[i][j]=2;
          else if (i<j)
                  a[i][j]=1;
                 else a[i][j]=3;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 44:

1. a **2.** a **3.** 2, 6, 7 **4.** jogp

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[23][23];

int main(int argc, char *argv[])
{
   cout<<" n= "; cin>>n;
   for(i=1; i<=n; i++)
      {
      k=i;
      for(j=n; j>=1; j--)
        if (k>1)
                  a[i][j]=k--;
          else a[i][j]=1;
      };
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 45:

1. a **2.** a **4.** `a[2][5]=-3`

3. Decendenţii radăcinii: 1, 7 / Frunze 5, 6, 8, 9

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j;   char s[41];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,40);
    for(i=0; i<strlen(s); i++)
      {
        for(j=0; j<strlen(s);j++)
          if (i!=j)
             cout<<s[j];
        cout<<endl;
      }
    system("PAUSE");
```

```
    return EXIT_SUCCESS;
}
```

Varianta 46:

1. c **2.** a **3.** 6 frunze **4.** 13

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i;  char s[101];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,100);
    for(i=0; i<strlen(s);i++)
      if ( (s[i] == 'a') || (s[i] == 'e') || (s[i] == 'i') || (s[i] == 'o') || (s[i] == 'u') )
         s[i]++ ;
    cout<<" s= "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 47:

1. c **2.** b **3.** 1

4.
```
( ( f.a % k == 0) && (f.b % k == 0) )
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, a[11][11], b[11][11];

int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
```

```
          b[n-j+1][i]=a[i][j];
      for(i=1; i<=m; i++)
        {
          for(j=1; j<=n; j++)
            cout<<b[i][j]<<"  ";
          cout<<endl;
        }
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 48:

1. d **2.** a **3.** 1→ 2 → 5

4. `sqrt(a.x*a.x+a.y*a.y)`

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[101][101], b[101][101];

int main(int argc, char *argv[])
{
   cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          k +=2;
          a[i][j]=k;
        }
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 49:

1. d **2.** c **3.** (x.med1 + x.med2) / 2.0 **4.** 1, 2, 3, 5, 4, 2

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;
```

```
int i, k;   char s[21], s1[21];
int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,20);
    s1[0]=0;
    for(i=0; i<strlen(s); i++)
      if ( (s[i] == 'a') || (s[i] == 'e') || (s[i] == 'i') || (s[i] == 'o') || (s[i] == 'u') )
        {
           k=strlen(s1);
           s1[k]=s[i]; s1[k+1]=0;
        }
    cout<<" s1= "<<s1 <<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 50:

1. a **2.** c **3.** 6 noduri **4.** 5

5.

```
#include <cstdlib>
#include <iostream>
#include <iomanip>
using namespace std;
int i, j; char s[101], s1[101];
int vocala(char);
int main(int argc, char *argv[])
{
    cout<<" s1= "; cin.get(s1,100);
    strcpy(s,s1);
    i=0;
    while ( (!vocala(s[i])) && (i<strlen(s)) )
       i++;
    if (i<strlen(s))
       for(j=i;j<strlen(s); j++)
          s[j]=s[j+1];
    i=strlen(s);
    while ( (!vocala(s[i])) && (i >= 0) )
        i--;
    if (i >=0)
       for(j=i;j<strlen(s); j++)
          s[j]=s[j+1];
    cout<<" s= "<<s <<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

```
int vocala(char c)
{
  if ( (c == 'a') || (c == 'e') || (c == 'i') || (c == 'o') || (c == 'u') )
     return 1;
    else return 0;
}
```

Varianta 51:

1. b **2.** d **3.** 12 **4.** 6

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j;  char s[53], sn[53],k ;

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,52);
    sn[0]=0;
    for(i=0; i<strlen(s) / 2; i++)
      for(j=0; j<(s[2*i]-'0'); j++)
        {
           k=strlen(sn);
           sn[k]=s[2*i];
           sn[k+1]=0;
        }
    cout<<" sn= "<<sn<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 52:

1. a **2.** b **3.** 20

4. Se elimina primul element al listei

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, c, ok;   char s[256], sn[53],k ;

int main(int argc, char *argv[])
{
    c=0;
    cout<<" n= "; cin>>n; cin.get();
    for(i=1; i<=n; i++)
```

```
        {
          cout<<" s= "; cin.get(s,255); cin.get();
          ok=1;
          for(j=0; j<strlen(s); j++)
            if ( (s[j] != 'a') && (s[j] != 'e') && (s[j] != 'i') && (s[j] != 'o') && (s[j] != 'u') )
               ok=0;
          if (ok)  c++;
        }
      cout<<" c= "<<c<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 53:

1. c **2.** a **3.** 2 **4.** 2

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

struct lista {
               int info;
               lista *urm;
             } *prim, *ultim, *p;
int n, a, r, i;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" a= "; cin>>a;
    cout<<" r= "; cin>>r;
    prim=NULL;
    for(i=1; i<=n; i++)
      {
        p = new lista;
        p->info = a+r*(i-1);
        p->urm=NULL;
        if (prim == NULL)
           prim=p;
          else ultim->urm=p;
        ultim=p;
      }
    p=prim;
    while (p!=NULL)
      {
        cout<<p->info<<" ";
        p=p->urm;
      }
    cout<<endl;
```

```
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 54:

1. d **2.** b **3.** k1=7; k2=4 **4.** 2 4

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, x, a[11][11];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" x= "; cin>>x;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i == j)
           a[i][j]=x / 100;
          else if (i+j == n+1)
                  a[i][j]=x % 10;
                 else a[i][j]=x / 10 % 10;
   for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 55:

1. c **2.** a **3.** 2 1

4. Elimina al doilea element al listei

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, n1, n2;  char s[11];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,10);
```

```
      i=0; n1=0;
      while (s[i] != '.')
        {
           n1 =n1*10+(s[i]-'0');
           i++;
        }
      i++;   n2=0;
      while (i < strlen(s))
        {
           n2 =n2*10+(s[i]-'0');
           i++;
        }
      while (n2 % 10 == 0) n2 /= 10;
      cout<<" Suma este: "<<n1+n2<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 56:

1. c **2.** d **3.** 2, 3, 5, 8 **4.** `( (c>='a') && (c<='z') )`

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[26][26];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" k= "; cin>>k;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if ( (j<=k) && (i<=k) )
           a[i][j]=1;
          else if ( (j>k) && (i<=k) )
                  a[i][j]=2;
                 else if ( (j<=k) && (i>k) )
                         a[i][j]=3;
                        else a[i][j]=4;
   for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 57:

1. c **2.** a **3.** 5

4. ((c == 'a') || (c == 'e') || (c == 'i') || (c == 'o') || (c == 'u'))

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a, b, mat[26][26];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" a= "; cin>>a;
    cout<<" b= "; cin>>b;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if ( (i == a) || (j == b) )
           mat[i][j]=0;
          else if ( (j<=b) && (i<=a) )
                  mat[i][j]=1;
                 else if ( (j>b) && (i<=a) )
                         mat[i][j]=2;
                        else if ( (j<=b) && (i>a) )
                                mat[i][j]=3;
                               else mat[i][j]=4;
   for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<mat[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 58:

1. b **2.** b **3.** 2 **4.** i!=j

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j;  char s[51];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,50);
    for(i=0; i<strlen(s); i++)
```

```
        if ( ( (s[i]<'a') || (s[i]>'z') ) && ( (s[i]<'A') || (s[i]>'Z') ) )
           {
              for(j=i; j<strlen(s); j++)
                 s[j]=s[j+1];
              i--;
           }
      cout<<" s= "<<s<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 59:

1. a **2.** c **3.** 1, 2, 6, 7, 8 **4.** `i+j=11`

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, a[9];  char s[51];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,50);
    for(i=0; i<=strlen(s); i++)
      if ( (s[i]>='0') && (s[i]<='9') )
         a[s[i]-'0']++;
    int max=a[0];
    for(i=0; i<=9; i++)
      if (max<a[i])
         max=a[i];
    i=0;
    while (a[i]<max)
      i++;
    cout<<i<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 60:

1. d **2.** c **3.** 1 **4.** 65

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, a[41];   char s[51];

int main(int argc, char *argv[])
```

```
{
    cout<<" s= "; cin.get(s,50);
    for(i=0; i<=strlen(s); i++)
      if ( (s[i]>='a') && (s[i]<='z') )
         a[s[i]-'a']++;
    int max=0;
    for(i=0; i<=40; i++)
      if (max<a[i])
         max=a[i];
    i=0;
    if (max!=0)
       {
          while (a[i]<max)
            i++;
          cout<<char(i+'a') <<endl;
       }
      else cout<<" NU "<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 61:

1. d **2.** c **3.** 15 **4.** 4

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(j=1; j<=n; j++)
      a[n][j]=j;
    for(i=n-1; i>=1; i--)
      for(j=1; j<=i; j++)
        a[i][j]=a[i+1][j-1]+a[i+1][j]+a[i+1][j+1];
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 62:

1. a **2.** b **4.** 6

3.
```
0 1 1 0 0 1
0 0 1 0 0 0
0 0 0 0 0 0
0 0 1 0 0 0
0 0 1 1 0 1
0 0 1 0 0 0
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, a[255];  char s[256];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,255);
    for(i=0; i<strlen(s); i++)
      if ( (s[i] >= 'a') && (s[i] <= 'z') && (a[s[i]] == 0) )
          {
             cout<<s[i]<<" ";
             a[s[i]]=1;
          }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 63:

1. b **2.** b **3.** 2

4.
```
if ( strcmp(s1,s2)<0 )
     cout<<s1<<" "<<s2;
   else cout<<s2<<" "<<s1;
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, k, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    k=1;
    for(j=1; j<=m; j++)
      for(i=1; i<=n; i++)
```

```
            a[i][j]=k++;
       for(i=1; i<=n; i++)
        {
          for(j=1; j<=n; j++)
            cout<<" "<<a[i][j];
          cout<<endl;
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 64:

1. d **2.** a **4.** 3 **3.** 3

5.

```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j; char s[101];
int vocala(char);

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,100);
    for(i=strlen(s); i>0; i--) s[i]=s[i-1];
    s[0]=' ';
    c=0;
    for(i=1; i<strlen(s); i++)
      if ( (s[i-1] == ' ') && (s[i] != ' ') )
         {
            j=i;
            while ( (s[j+1] != ' ') && (j < strlen(s)) )
               j++;
            if ( vocala(s[i]) && vocala(s[j]) )
               c++;
         }
    cout<<c<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

int vocala(char c)
{
  if ( (c == 'a') || (c == 'e') || (c == 'i') || (c == 'o') || (c == 'u') )
     return 1;
    else return 0;
}
```

Varianta 65:

1. c **2.** d **3.** 4 **4.** 101

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, k, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    k=1;
    for(i=1; i<=n; i++)
      if (i % 2 == 1)
         for(j=1; j<=m; j++)
              a[i][j]=k++;
        else for(j=m; j>=1; j--)
                 a[i][j]=k++;
     for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 66:

1. c **2.** b **3.** 3, 5

4. Afişeaza valoarea ultimului element al listei

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j;   char s[51];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,50);
    for(i=0; i<strlen(s); i++)
      {
         for(j=0; j<=i; j++)
           cout<<s[j];
         cout<<endl;
```

```
        }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 67:

1. a **2.** c **3.** 2 descendenti **4.** 222

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j;  char s[51];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,50);
    for(i=strlen(s)-1; i>=0; i--)
      {
         for(j=i; j<=strlen(s); j++)
           cout<<s[j];
         cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 68:

1. d 2. a **3.** T=(0, 1, 1, 2, 2, 5, 5)

4.
```
z->next=y;   x->next=z;
```

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j, n, m, a[51][51];   long p;
int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
```

```
      p=1;
      for(i=1; i<=m; i++)
        for(j=1; j<=n; j++)
          if ( (i % 2 == 0) && (j % 2 == 1) && (a[i][j]>0) )
             p *= a[i][j];
      cout<<" p= "<<p<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 69:

1. b **2.** c **3.** T=(0, 1, 1, 3, 3, 4, 4)

4. `u->next=v; v->next=NULL; u=v;`

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, ok, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    ok=1;
    for(i=2; i<=n; i++)
      for(j=1; j<=i-1; j++)
        if ( a[i][j] > 0 )
           ok=0;
    if (ok)
        cout<<" Este triunghiulara superior"<<endl;
      else cout<<" Nu este trunghiulara superior"<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 70:

1. a **2.** d **3.** T=(2, 0, 2, 5, 2) **4.** `u1->next=p1;`

5.

```
#include <cstdlib>
#include <iostream>
```

```
using namespace std;
int i, j, n, m, x, a[51][51];
int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    cout<<" x= "; cin>>x;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    for(i=x+1; i<=m; i++)
      for(j=1; j<=n; j++)
        a[i-1][j]=a[i][j];
    m=m-1;
    for(i=1; i<=m; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 71:

1. a **2.** d

3.
```
s1=s1+a[i][i];
s2=s2+a[i][n-i+1];
```

4.
```
cin.get(e1.nume); cin.get(); cin.get(e1.nota); cin.get();
cin.get(e2.nume); cin.get(); cin.get(e2.nota); cin.get();
if (e1.nota>=e2.nota)
    cout<<e1.nota;
   else cout<<e2.nota;
```

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, p, j;   char s[256], c[21];
int main(int argc, char *argv[])
{
```

```
      cout<<" S= "; cin.get(s,255); cin.get();
      cout<<" C= "; cin.get(c,20);
      if (!strstr(s,c))
         cout<<" NU APARE ";
        else{
              p =strstr(s,c) - s;
              while (p>0)
                {
                  for(i=0; i<strlen(c); i++)
                    s[p+i]='*';
                  p =strstr(s,c) - s;
                }
              cout<<" S= "<<s<<endl;
            }
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 72:

1. d **2.** d

3. 1 comp. conexe; trebuie eliminat nodul 1

4.
```
u->urm=p->urm;
p->urm->urm=p;
p->urm=NULL;
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    k=0;
    for(i=1; i<=n; i++)
      for(j=1; j<=i; j++)
          a[i-j+1][j]=++k;
    k=0;
    for(i=n; i>=2; i--)
      for(j=i; j<=n; j++)
          a[i+n-j][j]=++k;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
```

```
        }
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 73:

1. b **2.** c **3.** 2 arce; C=(1,2,3,4,1)

4.
```
int j, aux;
for(j=1; j<=n; j++)
  {
    aux=a[p][j];
    a[p][j]=a[q][j];
    a[q][j]=aux;
  }
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, imin, nv[101];    char s[101][256];

int main(int argc, char *argv[])
{
    cout<<" N= "; cin>>n;  cin.get();
    for(i=1; i<=n; i++)
      { cin.get(s[i],100);  cin.get(); }
    for(i=1; i<=n; i++)
      {
        nv[i]=0;
        for(j=0; j<strlen(s[i]); j++)
          if ( (s[i][j]=='a') || (s[i][j]=='e') || (s[i][j]=='i') || (s[i][j]=='o') || (s[i][j]=='u') )
             nv[i]++;
      }
    imin=1;
    for(i=2; i<=n; i++)
      if (nv[i]<=nv[imin])
         imin=i;
    cout<<s[imin]<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 74:

1. a **2.** c

3. a) 4, 6, 9 b) 5 noduri (1, 3, 4, 5, 7)

4. a) 2 muchii b) o muchie

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, f0, f1, f2, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    f0=0;
    f1=1;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          a[i][j]=f2 % 10;
          f2=f0+f1;
          f0=f1;
          f1=f2;
        }
    a[1][1]=1;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 75:

1. a **2.** d

3.
```
q->m=p;
p=q;
```

4. 2 arce (arcul (2, 3) şi (4, 1))

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
```

```
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        a[i][j]=(i+j)*(i+j);
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<a[i][j]<<"  ";
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 76:

1. b **2.** a **3.** 2 **4.** T=(5, 3, 6, 6, 7, 0, 6, 3)

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j;  char s[21];

int main(int argc, char *argv[])
{
    cout<<" S= "; cin.get(s,20);
    for(i=0; i<strlen(s) / 2; i++)
      {
        for(j=i; j<strlen(s)-i; j++)
          cout<<s[j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 77:

1. a **2.** c **3.** 2 **4.** 20

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i;  char s[52];

int main(int argc, char *argv[])
{
    cout<<" S= "; cin.get(s,51);
```

```
    s[0]=toupper(s[0]);
    for(i=1; i<strlen(s)-1; i++)
      if ( ( (s[i-1] == ' ') && (s[i] != ' ') ) || ( (s[i+1] == ' ') && (s[i] != ' ') ) )
         s[i]=toupper(s[i]);
    s[strlen(s)-1]=toupper(s[strlen(s)-1]);
    cout<<" s= "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 78:

1. c **2.** b **3.** 2 **4.** 99

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int p, j;   char s[101], t[101], c[16];
int gasire(char*, char*, int);

int main(int argc, char *argv[])
{
    cout<<" textul: "; cin.get(t,100); cin.get();
    cout<<" cuvantul: "; cin.get(c,15); cin.get();
    p=0;
    do{
      p=gasire(t,c,p);
      if (p!=-1)
          {
             while ( (t[p]!=' ') && ( p<strlen(t) ) )
               p++;
             for(i=0; i<p; i++)
               s[i]=t[i];
             s[p]='?';
             for(i=p; i<=strlen(t); i++)
               s[i+1]=t[i];
             strcpy(t,s);
          }
    }while (p != -1);
    cout<<" t= "<<t<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

int gasire(char *s, char*c, int ind)
{
    int i,j,ok;
    for(i=ind; i<strlen(s); i++)
      if ( s[i] == c[0] )
```

```
          {
             ok=1;
             j=1;
             while ( (j<strlen(c)) && (ok) )
               {
                  if (c[j] != s[i+j] )
                     ok=0;
                  j++;
               }
             if (ok)
               return i;
          };
    return -1;
  }
```

Varianta 79:

1. a **2.** a **4.** 3 muchii

3. T=(1, 0, 6, 9, 2, 5, 4, 3, 2, 6, 4, 6, 2)

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j;   char s[256], s1[256];
int vocala(char);

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,255);
    i=0;
    while (i<strlen(s))
      {
        if ( vocala(toupper(s[i])) )
          {
             for(j=0; j<i; j++)
               s1[j]=s[j];
             s1[i]='*';
             for(j=i+1; j<=strlen(s); j++)
               s1[j]=s[j-1];
             strcpy(s,s1);  i++;
          }
        i++;
      }
    cout<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

 int vocala(char c)
```

```
{
  if ( (c == 'A') || (c == 'E') || (c == 'I') || (c == 'O') || (c == 'U') )
     return 1;
    else return 0;
}
```

Varianta 80:

1. d **2.** d **3.** 6 **4.** 2

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j;    char s[256], aux;

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,255);
    for(i=0; i<strlen(s) / 2; i++)
      {
        j=strlen(s) / 2 + strlen(s) % 2 + i;
        aux=s[i];
        s[i]=s[j];
        s[j]=aux;
      }
    cout<<" s= "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 81:

1. c **2.** a

3.
```
a=a+b;
b=a-b;
a=a-b;
```

4.
```
if (p->info % 7 == 0)
   cout<<p->info;
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, s, k, a[101][101], gasit;

int main(int argc, char *argv[])
{
```

```
      cout<<" k= "; cin>>k;
      cout<<" n= "; cin>>n;
      cout<<" m= "; cin>>m;
      for(i=1; i<=n; i++)
        for(j=1; j<=m; j++)
          {
            cout<<" A["<<i<<"]["<<j<<"]= ";
            cin>>a[i][j];
          }
      s=0;
      for(j=1; j<=m; j++)
        {
          gasit=0;
          for(i=1; i<=n; i++)
            if (a[i][j] == k)
               gasit=1;
          if (gasit)
             s += j;
        }
      cout<<" s= "<<s<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 82:

1. c **2.** a **3.** tarta

4.
```
if (p->info % 10 == 0)
   cout<<p->info;
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, s, k, a[101][101], gasit;

int main(int argc, char *argv[])
{
    cout<<" k= "; cin>>k;
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    for(i=1; i<=n; i++)
      for(j=1; j<=m; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    s=1;
    for(j=1; j<=m; j++)
```

```
        {
          gasit=0;
          for(i=1; i<=n; i++)
            if (a[i][j] == k)
               gasit=1;
          if (gasit)
             s *= j;
        }
      cout<<" s= "<<s<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 83:

1. c **2.** b

3.
```
0 0 0 0 1 1
0 0 1 1 0 0
0 1 0 1 0 0
0 1 1 0 0 0
1 0 0 0 0 1
1 0 0 0 1 0
```

4.
```
for i=1 to m do
   if (a[k][i] % 2 != 0)
      cout<<a[k][i];
```

5.
```
struct lista{
                char info;
                lista *ant, *urm;
              } *ultim, *prim, *p, *u;

  p=prim;
  u=ultim;
  while (p->urm != u)
    {
      c=p->info;
      p->info=u->info;
      u->info=c;
      p=p->urm;
      u=u->ant;
    }
```

Varianta 84:

1. d **2.** a **3.** `cout<<char(c+1);`

4.
```
cout<<a[1][4]*a[2][3]*a[3][2]*a[4][1];
```

5.
```
struct lista{
               char info;
               lista *adr;
            } *prim, *p;

  p=prim;
  while (p->urm != NULL)
    p=p->urm;
  cout<<prim->info*p->info;
```

Varianta 85:

1. a **2.** b

3.
```
cout<<s[0]<<" "<<s[strlen(s)-1];
```

4.
```
cout<<a[1][1]*a[2][2]*a[3][3]*a[4][4];
```

5.
```
struct lista{
               char info;
               lista *adr;
            } *prim, *p;

  p=prim;
  while (p != NULL)
    {
      if (sqrt(p->info) == int(sqrt(p->info)) )
         cout<<p->info;
      p=p->urm;
    }
```

Varianta 86:

1. a **2.** a **4.** a=2; b=14

3.
```
0 1 1 1 0 0
1 0 0 0 0 0
1 0 0 0 1 1
1 0 0 0 0 0
0 0 1 0 0 0
0 0 1 0 0 0
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, i1, i2, a[21][21];
```

```
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    i1=1;
    for(i=1; i<=2*n; i++)
       if (i % 2 == 1)
          for(j=1; j<=2*n; j++)
            {
              a[i][j]=i1;
              i1 += 2;
            }
         else{
               i2=i1-4*n+1;
               for(j=2*n; j>=1; j--)
                 {
                   a[i][j]=i2;
                   i2 += 2;
                 }
             }
    for(i=1; i<=2*n; i++)
      {
        for(j=1; j<=2*n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 87:

1. a **2.** b **3.** 1, 2 **4.** `a=2; b=-1`

5.

```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j, n, s, nr, a[21][21];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    s=0; nr=0;
```

```
      for(i=2; i<=n; i++)
        for(j=1; j<=i-1; j++)
           if (a[i][j]>0)
              {
                 s += a[i][j];
                 nr++;
              };
      cout<<setw(5)<<setprecision(2)
          <<" MA= "<<(double(s)/nr)<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 88:

1. a **2.** b **3.** 3, 4, 5, 6 **4.** `a=2; b=1`

5.

```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j, n, s, nr, a[21][21];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    s=0; nr=0;
    for(i=1; i<=n-1; i++)
      for(j=i+1; j<=n; j++)
         if (a[i][j]>0)
            {
               s += a[i][j];
               nr++;
            };
    cout<<setw(5)<<setprecision(2)
        <<" MA= "<<(double(s)/nr)<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 89:

1. a **2.** a **4.** a=2; b=23

3.
```
0 1 1 0 0 0 0
1 0 0 1 0 0 1
1 0 0 0 1 1 0
0 1 0 0 0 0 0
0 0 1 0 0 0 0
0 0 1 0 0 0 0
0 1 0 0 0 0 0
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j, n, a, c, b, T[7][7];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    a=1;
    b=0;
    for(i=1; i<=n; i++)
      if (i % 2 == 1)
        for(j=1; j<=n; j++)
          {
             T[i][j]=b;
             c=a+b;
             a=b;
             b=c;
          }
       else for (j=n; j>=1; j--)
                {
                  T[i][j]=b;
                  c=a+b;
                  a=b;
                  b=c;
                }
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<T[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 90:

1. a **2.** b **3.** 2, 1 **4.** `a=2; b=16`

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j, n, s, nr, s2, nr2, a[21][21];
double m1, m2;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    s=0; nr=0;
    for(i=1; i<=n-1; i++)
      for(j=i+1; j<=n; j++)
        if (a[i,j]>0)
           {
              s += a[i][j];
              nr++;
           }
    m1= double (s) / nr;
    s2=0; nr2=0;
    for(i=2; i<=n; i++)
      for(j=1; j<=i-1; j++)
         if (a[i,j]>0)
           {
              s2 +=a[i][j];
              nr2++;
           }
    m2= double (s2) / nr2;
    cout<<" M1-M2= "<<setw(5)
        <<setprecision(2)<<(m1-m2) <<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 91:

1. d **2.** a

3.
```
for(j=1; j<=10; j++)
   a[j][3]=100;
```

4. da
dacarba

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

struct lista{
              char info;
              lista *prec, *urm;
           } *prim, *ultim, *p;
char s[21];   int i;

int main(int argc, char *argv[])
{
    cout<<" Introdu numele "; cin.get(s,20);
    prim=NULL;
    for(i=0; i<strlen(s); i++)
      {
        p = new lista;
        p->info=s[i];
        p->urm=NULL;
        if (prim == NULL)
           {
              p->prec=NULL;
              prim=p;
           }
        else{
               p->prec=ultim;
               ultim->urm=p;
            }
      ultim=p;
      }
    p=ultim;
    while (p != NULL)
      {
        cout<<p->info;
        p=p->prec;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 92:

1. b **2.** b **3.** (3, 6, 0, 1, 8, 1, 1, 3)

---

4. ((v.origine.x == v.extremitate.x) && (v.origine.y == v.extremitate.y))

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, imin, jmin, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    imin=1; jmin=1;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        if (a[i][j]<a[imin][jmin])
           {
              imin=i;
              jmin=j;
           }
    for(i=1; i<=m; i++)
      for(j=jmin+1; j<=n; j++)
        a[i][j-1]=a[i][j];
    n=n-1;
    for(j=1; j<=n; j++)
      for(i=imin+1; i<=m; i++)
        a[i-1][j]=a[i][j];
    m=m-1;
    for(i=1; i<=m; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 93:

1. d **2.** b **3.** 1 **4.** 1

5.
```
#include <cstdlib>
#include <iostream>
```

```
using namespace std;
char sa1[201], sa2[201], s1[201], s2[201];   int i;
int main(int argc, char *argv[])
{
    cout<<" s1= "; cin.get(s1,200);  cin.get();
    cout<<" s2= "; cin.get(s2,200);  cin.get();
    for(i=0; i<strlen(s1); i++)
      if ( (s1[i] == 'a') || (s1[i] == 'e') || (s1[i] == 'i') || (s1[i] == 'o') || (s1[i] == 'u') )
         sa1[i]='*';
        else sa1[i]='#';
    sa1[strlen(s1)]=0;
    for(i=0; i<strlen(s2); i++)
      if ( (s2[i] == 'a') || (s2[i] == 'e') || (s2[i] == 'i') || (s2[i] == 'o') || (s2[i] == 'u') )
         sa2[i]='*';
        else sa2[i]='#';
    sa2[strlen(s2)]=0;
    for(i=0; i<strlen(sa1); i++)
      if (sa1[i] == sa2[i])
         cout<<sa1[i];
        else cout<<"?";
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 94:

1. b

2. `(3, 5, 5, 5, 0)`

3.
```
1: 2
2: 3, 5
3: 1, 5
4: 3
5: 4
```

4.
```
#include <cstdlib>
#include <iostream>
using namespace std;
char s[21], s1[21];   int i, j, k;
int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,20);
    i=0;
    while (s[i] != ' ') i++;
    j=i;
    while (s[i] == ' ') i++;
    for(k=i; k<strlen(s); k++)
```

```
        s1[k-i]=s[k];
    s1[i]=0;
    strcat(s1," ");
    strncat(s1,s,j);
    cout<<" s1= "<<s1<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

5.
```
char aux;
aux=ultim->lit;
ultim->lit=prim->next->lit;
prim->next->lit=aux;
```

Varianta 95:

1. b **2.** a

3.
```
1: 2, 3, 4
2: 1, 3, 4, 5
3: 1, 2, 4, 5
4: 1, 2, 3, 5
5: 2, 3, 4
```

4. lungime:5 arcele: (1, 2; (2, 4; (4, 3; (3, 2; (2 ,5)

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

char s[21], s1[21];   int i, j;

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,20);
    i=0;
    while (s[i] != ' ') i++;
    j=i;
    while (s[i] == ' ') i++;
    s1[0]=s[i]; s1[1]=0;
    strcat(s1,". ");
    strncat(s1,s,j);
    cout<<" s1= "<<s1<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 96:

---

1. d **2.** a

3.
```
1: 2, 5
2: 1, 3, 5
3: 2, 4
4: 3, 5
5: 1, 4
```

4. `(1,2), (2,4), (4,3), (3,2), (2,5)`

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

char n[21], p[21], s[42];

int main(int argc, char *argv[])
{
    cout<<" nume= "; cin.get(n,20); cin.get();
    cout<<" prenume= "; cin.get(p,20);
    strcpy(s,p);
    strcat(s," ");
    strcat(s,n);
    cout<<" s= "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 97:

1. c **2.** a **3.** TITA

4.
```
struct lista{
                int info;
                lista *adr;
           };

cout<<p->adr->adr->info<<endl;
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, aux, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    for(i=1; i<=n; i++)
      for(j=1; j<=m; j++)
```

```
          {
            cout<<" A["<<i<<"]["<<j<<"]= ";
            cin>>a[i][j];
          }
      for(j=1; j<=m; j++)
        for(i=1; i<=n/2; i++)
          {
            aux=a[i][j];
            a[i][j]=a[n-i+1][j];
            a[n-i+1][j]=aux;
          }
      for(i=1; i<=n; i++)
        {
          for(j=1; j<=m; j++)
            cout<<" "<<a[i][j];
          cout<<endl;
        }
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 98:

1. b **2.** a **3.** (0, 1, 1, 2)

4.
```
struct COLET{
            double pret, greutate;
            char nume_oras[31];
           } x;
cin>>x.pret; cin>>x.greutate;  cin.get(x.nume_oras,30);
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    k=0;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          a[i][j]=k;
          k +=2;
        };
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
```

```
            cout<<" "<<a[i][j];
          cout<<endl;
        }
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 99:

1. d **2.** a

3.
```
0 0 0 0 1
0 0 1 0 0
0 1 0 1 0
0 0 1 0 0
1 0 0 0 0
```

4.

3	5

3	5	4

3	5	4	6

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i>j)
           a[i][j]=i;
         else a[i][j]=j;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 100:

1. d **2.** a **3.** 2, 4, 6 **4.** 3

5.

```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m;   long a[103][103];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=2; i<=n+1; i++)
      for(j=2; j<=n+1; j++)
        {
          cout<<" A["<<i-1<<"]["<<j-1<<"]= ";
          cin>>a[i][j];
        }
    for(i=1; i<=n+2; i++)
      {
         a[1][i]=100000000;
         a[n+2][i]=100000000;
         a[i][1]=100000000;
         a[i][n+2]=100000000;
      }
    for(i=2; i<=n+1; i++)
      for(j=2; j<=n+1; j++)
        if ( (a[i][j]<a[i-1][j]) && (a[i][j]<a[i+1][j])
          && (a[i][j]<a[i][j-1]) && (a[i][j]<a[i][j+1]) )
           cout<<a[i][j]<<" ";
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

==========