

**1.zadatak**

```

program savrsen_br_iz_intervala;
var
    m,n,i,zb,k:integer;
begin
    writeln('Unesi interval');
    readln(m,n);
    for i:=m to n do
        begin
            zb:=1;
            for k:=2 to (i div 2) do begin
                if i mod k =0 then zb:=zb+k; {zb je suma djelilaca broja}
            end;
            if i=zb then writeln(i, ', ');
        end;
    readln;
end.

```

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**2.zadatak**

```

program k_savrenih_br;
var
    n,k,br:integer;
    j:longint;
function savrsen(a:integer):boolean;
var
    k,zb:integer;
    s:boolean;
begin
    zb:=1;
    for k:=2 to (a div 2) do
        begin
            if (a mod k =0) then zb:=zb+k;
        end;
    if zb=a then s:=true
        else s:=false;
    savrsen:=s;
end;
begin
    writeln('Unesi broj n i koliko k savrsenih brojeva vecih od njega se trazi ');
    readln(n,k);
    br:=0;j:=n+1;
    while br<=k do begin
        if savrsen(j) then begin
            br:=br+1;
            write(j:5);
            j:=j+1;
            halt(0);
        end
    end

```

```

                else j:=j+1;
            end;
        readln;
    end.

```

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### 3.zadatak

```

program prijateljski_brojevi;
var i,m,n,j:integer;
function sumadjel(n:integer):integer;
var sd,d:integer;
begin
    sd:=1; d:=2;
    while (d<sqrt(n)) do
        begin
            if (n mod d=0) then sd:=sd+d+n div d;
            d:=d+1;
        end;
        if (d*d=n) then sd:=sd+d;
        sumadjel:=sd;
    end;
begin
    write(' Unesi interval: '); readln(m,n);
    for i:=m to n-1 do
        begin
            j:=sumadjel(i);
            if (i<j) and (j<=n) then if(i=sumadjel(j))and(i<>j)then{izbjegava stampanje savrsenih brojeva}
            writeln(i:6,j:6);
        end;
        readln;
    end.

```

### 4.zadatak

```

program fibernacijevi_br;
type niz=array[1..50]of integer;
var
    a,b,n,i:integer;
    x:niz;
procedure stampaniza(n : integer; a : niz);
var
    i : integer;
begin
    for i := 1 to n - 1 do
        begin
            write(a[i], ' ');
        end;
        write(a[n], ' ');
        writeln;
    end;
begin

```

```
writeln('Do kojeg broja se stampa Fibernacijev niz ');
readln(n);
x[1]:=1;
x[2] :=2;
for i:=3 to n do x[i]:=x[i2] + x[i1];
stampaniza(n,x);
readln;
end.
```

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### 5. zadatak

```
program super_slozen;
var
    n,br,k,j,d,i:integer;
    ss:boolean;
begin
    writeln('Unesi broj');
    readln(n);
    br:=0;
    for i:=2 to (n div 2) do
        if(n mod i=0)then br:=br+1; {br broji djelioce n}
    for k:=1 to n1 do begin
        d:=0;
        for j:=2 to (k div 2) do begin
            if(k mod j=0)then d:=d+1; {d broji djelioce broja manjeg od n}
            end;
        if br>d then ss:=true
            else ss:=false;
        end;
    if ss then writeln(n,' je superslozen')
        else writeln(n,' nije superslozen');
    readln;
end.
```

---

### 6.zadatak

```
program prosti_djelioci;
var
    n,i:integer;
    s:boolean;
begin
    writeln('Unesite broj ');
    readln(n);
    write(n,'=');
    for i:=2 to round(sqrt(n)) do
        while n mod i=0 do begin
            write('*',i);
            s:=true;
            n:=n div i;
        end;
    if s=false then write('1*',n);
```

```

    readln;
end.

```

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**7.zadatak**

```

program prosti_djelioci;
var
    n,i:integer;
    s:boolean;
begin
    writeln('Unesite broj' );
    readln(n);
    write(n,'=1');
    for i:=2 to round(sqrt(n)) do
        while n mod i=0 do begin
            write('*',i);
            s:=true;
            n:=n div i;
        end;
    if s=false then write('*',n);
    readln;
end.

```

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**8.zadatak**

```

program najblizi_prosti;
var
    n,a,b:integer;
    s1,s2:boolean;
function prost(n:integer):boolean;
var pr:boolean; i:integer;
begin
    pr:=(n=2) or ((n>2) and (n mod 2=1));
    i:=3;
    while (i<=sqrt(n))and pr do
        begin
            pr:=(n mod i <> 0);
            i:=i+2;
        end;
    prost :=pr;
end;
begin
    writeln('Unesi broj');
    readln(n);
    s1:=false;s2:=false;
    a:=n1;b:=n+1;
    while s1=false do if prost(b) then s1:=true
        else b:=b+1;
    while s2=false do if prost(a) then s2:=true
        else a:=a1;
    if na=bn then writeln('Najblizi prosti brojevi su: ',a,' i ',b)

```

```

        else if na>bn then writeln('Najblizi prost broj je ',b)
            else writeln('Najblizi prost broj je ',a);
    readln;
end.

```

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**9.zadatak**

```

program armstrongov_br;
var
    i,c,j,v,s,m,a:integer;
    y:array[1..4] of integer;
function stepen(a,b:integer):integer;
var
    i,st:integer;
begin
    st:=1;
    for i:=1 to b do st:=a*a;
    stepen:=st;
end;
begin
    for i:=100 to 9999 do begin
        v:=0;
        j:=i;
        while j>0 do begin
            c:=j mod 10; {razdvaja broj na cifre}
            j:=j div 10;
            v:=v+1;{broji cifre broja}
            y[v]:=c;{cife čuva u niz y}
        end;
        s:=0;{s je suma cifara na vti stepen}
        for m:=1 to v do begin
            a:=y[m];
            s:=stepen(a,v)+s;
            if s=i then writeln(i,',');
        end;
    end;
    readln;
end.

```

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**10.zadatak**

```

program sledeci_datum;
var
    d,d1,m,m1,g,g1,n:integer;
function prestupna(g:integer):integer;
var
    p:integer;
begin
    if ((g mod 4=0) and (g mod 100<>0)) or (g mod 400=0)then p:=1
        else p:=0;
    prestupna:=p;
end.

```

```

end;
begin
  writeln('Unesite dan,mjesec i godinu(odvojeni razmacima)');
  readln(d,m,g);
  case (m) of 1,3,5,7,8,10,12: n:=31;
             2: n:=28+prestupna(g);
             4,6,9,11: n:=30;
  end;
  if (d+1<=n) then begin
    d1:=d+1;
    m1:=m;
    g1:=g;
  end
  else begin
    d1:=1;
    if (m=12)then begin g1:=g+1;m1:=1;end
    else begin g1:=g;m1:=m+1;end;
  end;
  writeln('Sledeci datum je: ',d1,',',m1,',',g1,',');
  readln;
end.

```

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### 11.zadatak

program razlikadatuma1; {ideja je da se izracuna broj proteklih dana od nekog datuma-ovdje 1.1.1980 za oba datuma;oduzimanjem te dvije vrijednosti dobija se resenje}

```

var
  d1,d2,m1,m2,g1,g2,r,r1,r2:integer;
function prestupna(g:integer):integer;
var
  p:integer;
begin
  if ((g mod 4=0) and (g mod 100<>0)) or (g mod 400=0)then p:=1
    else p:=0;
  prestupna:=p;
end;
function godina(d,m,g:integer):integer;
var
  i,r:integer;
begin
  r:=0;i:=1980;
  while i<g do begin
    r:=r+365+prestupna(i);
    i:=i+1;
  end;
  godina:=r;
end;
function mjesec(d,m,g:integer):integer;
var
  j,r:integer;

```

```

begin
  r:=d;
  for j:=1 to (m1) do begin
    case(j) of
      1,3,5,7,8,10,12: r:=r+31;
      2: r:=r+28+prestupna(g);
      4,6,9,11: r:=r+30;
    end;
  end;
  mjesecc:=r;
end;
begin
  writeln('unesi prvi datum');
  readln(d1,m1,g1);
  writeln('unesi drugi datum');
  readln(d2,m2,g2);
  r1:=godina(d1,m1,g1)+mjesecc(d1,m1,g1);
  r2:=godina(d2,m2,g2)+mjesecc(d2,m2,g2);
  if (r1>=r2) then r:=r1r2+1
    else r:=r2r1+1;
  writeln('razlika dana je ',r);
  readln;
end.

```

---

## 12.zadatak

```

program binaran_prost;
var
  m,n:integer;br:longint;
function prost(n:integer):boolean;
var pr:boolean; i:integer;
begin
  pr:=(n=2) or ((n>2) and (n mod 2=1));
  i:=3;
  while (i<=sqrt(n))and pr do
    begin
      pr:=(n mod i <> 0);
      i:=i+2;
    end;
  prost :=pr;
end;
begin
  writeln('unesi interval');
  readln(m,n);
  br:=1;
  while (br<=m) do br:=br*2+1; { binaran broj ciji se zapis sastoji samo od jedinica dobija se po ovoj formuli;posto
  ima manje binarnih br ciji se zapis sastoji samo od jedinica nego prostih brojeva, provjerava se da li je takav binaran
  broj prost }
  while (br<n) do begin
    if prost(br) then write(' ',br);

```

```

        br:=br*2+1;
        end;
    readln;
end.

```

---

### **13.zadatak**

```

program dva_prosta_br_iz_intervala;
var i,m,n,max,p1,p2,prvi,drugi:integer;n1,n2:boolean;
function prost(n:integer):boolean;
var pr:boolean; i:integer;
begin
    pr:=(n=2) or ((n>2) and (n mod 2=1));
    i:=3;
    while (i<=sqrt(n))and pr do
        begin
            pr:=(n mod i <> 0);
            i:=i+2;
        end;
    prost :=pr;
end;
begin
    write (' interval: ');readln(m,n); i:=m1;n1:=false;n2:=false;
    while(i<=n) and not n1 do
        begin
            i:=i+1; n1:=prost(i);
        end;
    if (i>n)then
        begin
            writeln('nema prostih brojeva');
            halt(0);
        end
    else prvi:=i;
    while (i<=n) and not n2 do begin i:=i+1;n2:=prost(i);end;
    if (i>n) then
        begin writeln('samo jedan prost broj'); halt(0);end
    else begin
        drugi:=i;
        max:=drugiprvi;
        p1:=prvi;
        p2:=drugi;
        end;
    while(i<=n) do
        begin
            if prost(i) then
                begin
                    drugi:=i;
                    if(max<drugiprvi)
                        then begin
                            max:=drugiprvi;

```



```

        p1:=prvi;
        p2:=drugi;
        end;
    prvi:=drugi;
    end;
    i:=i+1;
    end;
    writeln('Dva prosta broja',p1:8,p2:8);readln;readln;
end.

```

---

#### **14.zadatak**

```

program max_niza;
type
    niz=array[1..50]of integer;
var
    x:niz;
    max1,max2,n,i:integer;
procedure unosniza(var n:integer;var x:niz);
var
    i:integer;
begin
    writeln('Br clanova niza ');
    readln(n);
    for i:=1 to n do begin
        write('x['i,']= ');
        readln(x[i]);
        end;
end;
procedure stampaniza(n:integer; x:niz);
var
    i:integer;
begin
    for i:=1 to n do begin
        write(x[i],', ');
        end;
end;
begin
    unosniza(n,x);
    max1:=x[1];max2:=x[2];
    for i:=2 to n do if(x[i]>max1) then max1:=x[i]
        else if(x[i]>max2) then max2:=x[i];
    writeln('Iz niza ');
    stampaniza(n,x);
    write(' najveci clan je: ',max1);
    write(' a drugi po velicini: ',max2);
    readln;
end.

```

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**15.zadatak**

```

program simetrican_podniz;
type
    niz = array[1..50] of integer;
var
    n, p, d : integer;
    sim : boolean;
    x : niz;

procedure unosniza(var n : integer; var a : niz);
var
    i : integer;
begin
    write('Unesite broj clanova niza: ');
    readln(n);
    for i := 1 to n do
        begin
            write('a[', i, ' ] = ');
            readln(a[i]);
        end;
end;

procedure stampaniza(n : integer; a : niz);
var
    i : integer;
begin
    for i := 1 to n - 1 do
        begin
            write(a[i], ' ');
        end;
    write(a[n], '.');
    writeln;
end;

function simetrican(n : integer; x : niz; p, d : integer) : boolean;
var
    i, j : integer;
    s : boolean;
begin
    s := true;
    i := p;
    j := p + d - 1;
    while (i <= j) and s do
        begin
            s := (x[i] = x[j]);
            i := i + 1;
            j := j - 1;
        end;
    simetrican := s;
end;

```

```

end;

begin
  unosniza(n, x);
  writeln('n = ', n);
  stampaniza(n, x);
  sim := false;
  d := n;

  while ((d > 1) and (sim = false)) do
    begin
      p := 1;
      while ((p <= n + 1 - d) and (sim = false)) do
        begin
          if simetrican(n, x, p, d) then
            begin
              write('Podniz od pozicije ', p, ' duzine ', d, ' je simetrican. ');
              sim := true;
            end;
          p := p + 1;
        end;
      d := d - 1;
    end;
  if (sim = false) then writeln(x[1]);
  writeln;
  readln;
end.

```

---

### 16.zadatak

```

program najduzi_zajednicki_podniz;
type niz=array[1..50] of integer;
var
  n,m,d,i,k,p,q,g,h,max:integer; x,y:niz;f:boolean;
procedure unosniza(var n:integer; var x:niz);
var i:integer;
begin
  writeln('Unesite broj clanova niza: '); readln(n);
  for i:=1 to n do begin write('a[',i,']=');
    readln(x[i]);
  end;
end;
end;
procedure stampaniza(n:integer; x:niz);
var i:integer;
begin
  for i:=1 to n do write(x[i],',');
end;
begin
  unosniza(n,x);
  unosniza(m,y);

```

```

max:=0; d:=0;f:=false;
for i:=1 to n do begin
    g:=i; d:=0;{g brojac za niz x,h za y}
    for k:=1 to m do begin
        h:=k; d:=0;
        while (x[g]=y[h]) and (g<=n) do begin
            g:=g+1;
            h:=h+1;
            d:=d+1;
            f:=true;
        end;
        if d>max then begin max:=d;
            p:=k;
            q:=h-1;
        end;
    end;
end;

if f then writeln('najduzi isti podniz je od pozicije ',p,' duzine ',max)
else writeln('nemaju zajednickih elemenata');
readln();
end.

```

---

**18.zadatak**

```

program novinizovi;
type niz=array [1..50] of integer;

var x,y,z:niz;n,a,b:integer;

Procedure unosniza (var n:integer; var a:niz);

var i:integer;

Begin

write('Broj clanova niza: '); readln(n);

For i:=1 to n do
Begin
write ('A[' ,i,']=');readln(a[i]);
End;
end;

Procedure stampaniza (n:integer; a:niz);
var I:integer;

Begin
for i:=1 to n do
write (A[I],', '); writeln;

```

```

end;

function brp(n:integer;x:niz;a:integer):integer;
var i,rez:integer;
begin
  rez:=0;
  for i:=1 to n do
    if (x[i]=a) then rez:=rez+1;
    brp:=rez;
  end;
end;

procedure razdvajanje(n:integer;x:niz;var k:integer;var y:niz;var l:integer; var z:niz);
var i:integer;
begin
  k:=0;l:=0;
  for i:=1 to n do
    begin
      if(brp(n,x,x[i])=1)
      then
        begin
          k:=k+1;y[k]:=x[i];
        end
      else
        begin
          if (brp(l,z,x[i])=0)
          then
            begin l:=l+1;z[l]:=x[i];
            end;
          end
        end;
    end;
end;
end;
begin
  unosniza(n,x);
  razdvajanje(n,x,a,y,b,z);
  write ('Uneseni niz je: '); stampaniza(n,x);writeln;
  write('Clanovi niza koji se ne ponavljaju: ');stampaniza(a,y);
  writeln;
  write('Clanovi niza koji se ponavljaju: ');stampaniza(b,z);
  readln;
end.

```

---

**19.zadatak**

```

program krovni_podniz;
type niz=array[1..50]of integer;
var
  x:niz;
  n,i,k,l,duzina,max,p,q:integer;
  ok:boolean;
procedure unosniza(var n:integer; var x:niz);

```

```

var i:integer;
begin
  writeln('Unesite broj clanova niza: '); readln(n);
  for i:=1 to n do begin
    write('a[',i,']=');
    readln(x[i]);
  end;
end;
begin
  unosniza(n,x);
  max:=0;
  for i:=2 to n-1 do
    begin
      k:=i-1;l:=i+1;ok:=true;
      while (k>=1)and(l<=n)and ok do
        begin
          ok:=(x[k]<x[k+1])and(x[l]<x[l-1]);
          k:=k-1;l:=l+1;
        end;
      if ok then
        begin
          duzina:=l-k-1;
          if(duzina>max)and (duzina>1)then
            begin
              max:=duzina;
              p:=k+1;
              q:=l-1;
            end;
        end;
      else begin
          duzina:=l-k-3;
          if (duzina>max)and(duzina>1)then begin
              max:=duzina;
              p:=k+2;
              q:=l-2;
            end;
        end;
    end;
  end;
  if max=0 then writeln('Nema krovnog podniza');
  else writeln('Najduzi krovni podniz je od pozicije',p,' do pozicije ',q);
  readln;
end.

```

---

**20.zadatak**

```

program rastuci_poredak;
type niz=array[1..50]of integer;
var n:integer;
    x:niz;
procedure unosniza(var n:integer; var x:niz);

```

```
var i:integer;
begin
writeln('Unesite broj clanova niza: '); readln(n);
for i:=1 to n do begin write('a[',i,']=');
                      readln(x[i]);
                      end;
end;
procedure stampaniza(n:integer; x:niz);
var i:integer;
begin
for i:=1 to n do write(x[i],',');
end;
procedure uredi(n:integer;var x:niz);
var
i,j,t:integer;
begin
for i:=1 to n-1 do
for j:=i+1 to n do if (x[i]>x[j]) then begin
t:=x[i];
x[i]:=x[j];
x[j]:=t;
end;
end;
begin
unosniza(n,x);
uredi(n,x);
stampaniza(n,x);
readln;
end.
```