Решения
задач муниципального этапа Всероссийской олимпиады школьников по
информатике в 2019-2020 учебном году

9-11 класс

A. Гирлянда

```
var N,ans:int64;
k,i:longint;
begin
readln(n);
while not (n=0) do
    begin
    if n mod 2=1 then k:=k+1;
    n:=n div 2;
    end;
ans:=1;
for i:=1 to k-1 do
ans:=ans*2;
writeln(ans);
end.
```

B. Billing

```
var
 N, k1, k2, p1, p2, p3, sum, i: longint;

begin
 readln(N, k1, k2, p1, p2, p3);
 sum := 0;
 if n < p1 then begin writeln(sum); exit; end
 else sum := sum + k1;
 n := n - p1;
 for i := 1 to k2 do
 begin
  if n <= 0 then begin writeln(sum); exit; end;
  sum := sum + 1;
  n := n - p2;
 end;
 while(true) do
 begin
  if n <= 0 then begin writeln(sum); exit; end;
  sum := sum + 1;
  n := n - p3;
 end;
end.
```

C. Порядок действий

```
program sd;
var   s,st,viv:string;
  i,tek,j,k,code:integer;
  m:array[1..100] of integer;
Begin
  readln(s);
  tek:=1;
  st:=s;
  for i:=1 to length(s) do
  Begin
    if s[i]=')'
    Then Begin
          j:=i;
          while s[j]<>'(' do
          Begin
            dec(j);
          End;
          for k:=j to i do
          if s[k]='*'
          Then begin m[k]:=tek; inc(tek); s[k]:='_'; end;
          for k:=j to i do
          if s[k]='+'
          Then begin m[k]:=tek; inc(tek); s[k]:='_'; end;
          s[i]:='_';
          s[j]:='_';
        end;
  ENd;
  for i:=1 to length(s) do
  Begin
          if s[i]='*'
          Then begin m[i]:=tek; inc(tek); end;
  end;

  for i:=1 to length(s) do
  Begin
          if s[i]='+'
          Then begin m[i]:=tek; inc(tek); end;
  end;

  j:=1;
  for i:=1 to length(st) do
  Begin
          if (st[i]='#') or (st[i]='(') or (st[i]=')')
          Then viv:=viv+st[i]
          Else begin
                while m[j]=0 do
                inc(j);
```

```
                    str(m[j],s);
                    viv:=viv+s;
                    inc(j);
                  end;
    ENd;
    writeln(viv);
eND.
```

D. Сдача-2

```
var
n, s, m, i, j, k, max1, max2, min:longint;
p, q: array[0..20000] of longint;

begin
readln(s);
readln(n);
p[0] := 1;
max1 := 0;
for i := 1 to n do
  begin
  read(k);
  for j := max1 downto 0 do
   if p[j] > 0 then p[j + k] := 1;
  inc(max1, k);
  end;
readln();

readln(m);
q[s] := 1;
max2 := s;
for i := 1 to m do
  begin
  read(k);
  for j := max2 downto 0 do
   if q[j] > 0 then if (q[j + k] > q[j] +1) or (q[j + k] = 0) then q[j + k] := q[j] +1;
  inc(max2, k);
  end;
readln;

{
for i:= 1 to max1 do
if p[i] > 0 then write(i,' ');
writeln;

for i:= 1 to max2 do
if q[i] > 0 then write(i,' (', q[i],') ');
writeln;
```

```
}

min := 1000000000;
for i:= 1 to 20000 do
if (q[i] > 0) and (p[i] > 0) and (min > q[i]) then min := q[i];
if min < 1000000000 then writeln(min - 1) else writeln('-1');

end.
```

E. Вслепую по лабиринту

```
var s:string;
    visit:array [-100..100, -100..100] of boolean;

function inp:boolean;
begin
   readln(s);
   if s = 'EMPTY'
      then inp := true
   else inp := false;
end;


procedure dfs(p1, p2:longint);
var f:boolean;
begin
   visit[p1][p2] := true;
   if not visit[p1 - 1][p2] then
      begin
         writeln('NORTH');flush(output);
         if inp then begin dfs(p1 - 1, p2);
         writeln('SOUTH');flush(output);
         f := inp;end;
      end;
   if not visit[p1][p2 + 1] then
      begin
         writeln('EAST');flush(output);
         if inp then begin dfs(p1, p2 + 1);
         writeln('WEST');flush(output);
         f := inp;end;
      end;
   if not visit[p1 + 1][p2] then
      begin
         writeln('SOUTH');flush(output);
         if inp then begin dfs(p1 + 1, p2);
         writeln('NORTH');flush(output);
         f := inp;end;
      end;
```

```pascal
    if not visit[p1][p2 - 1] then
       begin
          writeln('WEST');flush(output);
          if inp then begin dfs(p1, p2 - 1);
          writeln('EAST');flush(output);
          f := inp;end;
       end;
end;

procedure manipulation;
begin
   dfs(1, 1);
   writeln('DONE');flush(output);
end;

begin
   manipulation;
end.
```