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program tennis_math;

function verovatnoca(x,y:real):real;

var gemx,gemy,tajbx,tajby,setxdob0,setxdob1,setxgub1,setxgub0:real;

    setydob1,setydob0,setygub0,setygub1:real;

    i,j,h:integer;

    v:array[0..10,0..10] of real;

    r:array[0..10,0..10,1..2] of real;

begin

    //Racunamo verovatnoce za gemove

    gemx:=-x*x*x*x*(2*x-3)*(5-8*x+4*x*x)/(1-2*x+2*x*x);

    gemy:=-y*y*y*y*(2*y-3)*(5-8*y+4*y*y)/(1-2*y+2*y*y);

    //Racunamo verovatnoce za tajbrejkove

    for i:=0 to 7 do

        for j:=0 to 7 do v[i,j]:=0;

    v[0,0]:=1;

    for i:=0 to 6 do

        for j:=0 to 6 do

            if ((i+j) mod 4 = 0) or ((i+j) mod 4 = 3) then begin

                v[i+1,j]:=v[i+1,j]+v[i,j]*x;

                v[i,j+1]:=v[i,j+1]+v[i,j]*(1-x);

            end

            else begin

                v[i+1,j]:=v[i+1,j]+v[i,j]*(1-y);

                v[i,j+1]:=v[i,j+1]+v[i,j]*y;

            end;

        end;

    end;

    tajbx:=v[6,6]*x*(1-y)/(x*(1-y)+y*(1-x));

    for i:=0 to 5 do tajbx:=tajbx+v[7,i];

    for i:=0 to 7 do

        for j:=0 to 7 do v[i,j]:=0;

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v[0,0]:=1;
for i:=0 to 6 do
  for j:=0 to 6 do
    if ((i+j) mod 4 = 0) or ((i+j) mod 4 = 3) then begin
      v[i+1,j]:=v[i+1,j]+v[i,j]*y;
      v[i,j+1]:=v[i,j+1]+v[i,j]*(1-y);
    end
    else begin
      v[i+1,j]:=v[i+1,j]+v[i,j]*(1-x);
      v[i,j+1]:=v[i,j+1]+v[i,j]*x;
    end;
  end;
tajby:=v[6,6]*y*(1-x)/(x*(1-y)+y*(1-x));
for i:=0 to 5 do tajby:=tajby+v[7,i];
//Racunamo verovatnoce za setove
for i:=0 to 7 do
  for j:=0 to 7 do v[i,j]:=0;
v[0,0]:=1;
for i:=0 to 5 do
  for j:=0 to 5 do
    if (i+j) mod 2 = 0 then begin
      v[i+1,j]:=v[i+1,j]+v[i,j]*gemx;
      v[i,j+1]:=v[i,j+1]+v[i,j]*(1-gemx);
    end
    else begin
      v[i+1,j]:=v[i+1,j]+v[i,j]*(1-gemy);
      v[i,j+1]:=v[i,j+1]+v[i,j]*gemy;
    end;
  end;
setxdob1:=v[6,1]+v[6,3]+v[5,5]*(1-gemx-gemy+gemx*gemy*2)*tajbx;
setxdob0:=v[6,0]+v[6,2]+v[6,4]+v[5,5]*gemx*(1-gemy);
setxgub1:=v[1,6]+v[3,6]+v[5,5]*(1-gemx-gemy+gemx*gemy*2)*(1-tajbx);

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setxgub0:=v[0,6]+v[2,6]+v[4,6]+v[5,5]*gemy*(1-gemx);

for i:=0 to 7 do
  for j:=0 to 7 do v[i,j]:=0;

v[0,0]:=1;

for i:=0 to 5 do
  for j:=0 to 5 do
    if (i+j) mod 2 = 0 then begin
      v[i+1,j]:=v[i+1,j]+v[i,j]*gemy;
      v[i,j+1]:=v[i,j+1]+v[i,j]*(1-gemy);
    end
    else begin
      v[i+1,j]:=v[i+1,j]+v[i,j]*(1-gemx);
      v[i,j+1]:=v[i,j+1]+v[i,j]*gemx;
    end;

setydob1:=v[6,1]+v[6,3]+v[5,5]*(1-gemx-gemy+gemx*gemy*2)*tajby;
setydob0:=v[6,0]+v[6,2]+v[6,4]+v[5,5]*gemy*(1-gemx);
setygub1:=v[1,6]+v[3,6]+v[5,5]*(1-gemx-gemy+gemx*gemy*2)*(1-tajby);
setygub0:=v[0,6]+v[2,6]+v[4,6]+v[5,5]*gemx*(1-gemy);

//Racunamo verovatnocu za mec

for i:=0 to 3 do
  for j:=0 to 3 do begin
    r[i,j,1]:=0;
    r[i,j,2]:=0;
  end;

r[0,0,1]:=1;
r[0,0,2]:=0;

for i:=0 to 2 do
  for j:=0 to 2 do begin
    r[i+1,j,1]:=r[i+1,j,1]+setxdob0*r[i,j,1]+setygub1*r[i,j,2];
    r[i+1,j,2]:=r[i+1,j,2]+setxdob1*r[i,j,1]+setygub0*r[i,j,2];
  end;

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    r[i,j+1,1]:=r[i,j+1,1]+setxgub0*r[i,j,1]+setydob1*r[i,j,2];
    r[i,j+1,2]:=r[i,j+1,2]+setxgub1*r[i,j,1]+setydob0*r[i,j,2];
end;
verovatnoca:=r[3,0,1]+r[3,0,2]+r[3,1,1]+r[3,1,2]+r[3,2,1]+r[3,2,2];
end;
var a,b:real;
begin
    write('Uneti verovatnocu da prvi igrac dobije poen kad servira: ');
    readln(a);
    write('Uneti verovatnocu da drugi igrac dobije poen kad servira: ');
    readln(b);
    writeln('Verovatnoca da prvi igrac dobije mec iznosi: ',verovatnoca(a,b):0:3);
end.

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