

Correction Exercices Page 121 du livre 4 Math

Exercice 1 :

```
Program Exe1_121;
uses wincrt;
var nom:string;
    col:byte;
begin
  write('donner votre nom et votre prénom :');
  readln(nom);
  for col:=80-length(nom) downto 1 do
  begin
    clrscr;
    gotoxy (30,11);
    writeln ('taper une touche pour défiler...');
    gotoxy (col, 12);
    write (nom);
    readkey;
  end;
end.
```

Exercice 2 :

```
Program Exe2_121;
uses wincrt;
var i:integer;
begin
  for i:=1 to 1000 do
  begin
    write('***');
    readkey;
    {lors de l'exécution maintenir la touche entrée enfoncée !}
    clrscr;
    write('***:79);
    readkey;
    clrscr;
    gotoxy(1,25); write('***');
    readkey;
    clrscr;
    gotoxy(1,25); write('***:79);
    readkey;
    clrscr;
  end;
end.
```

Exercice 3 :

```
Program exe3_121;
uses wincrt;
var i,j:byte;
begin
  j:=79;
  For i:=1 to 79 do
  begin
    clrscr;
    write('Taper une touche pour déplacer':50);
    gotoxy(i,12); write('*');
    gotoxy(j,13); write('*');
    j:=j-1;
    readkey;
  end;
end.
```

Exercice 4 :

```
Program exe4_121;
uses wincrt;
var nom: string;
    a: longint;
    b: real;
    col,i:integer;
Begin
  write('Donner votre nom et votre prénom : ');readln(nom);
  for i:=1 to 10 do
  begin
    for col:=80-length(nom) downto 1 do
    begin
      clrscr;
      gotoxy (col, 12);
      write (nom);
      for a:=1 to 100000 do b:=cos(b+pi); {delay}
    end;
    for col:=1 to 81-length(nom) do
    begin
      clrscr;
      gotoxy(col, 12);
      write(nom);
      for a:=1 to 100000 do b:=cos(b+pi);
    end;
  end;
End.
```

Exercice 5 :

```
Program exe5_121;
uses wincrt;
var i:integer;
begin
  for i:=10 to 99 do
    if (i mod 10) mod (i div 10) = 0
      then write (i:4);
end.
```

Exercice 6 :

```
Program exe6_121;
uses wincrt;
var i,u,d:integer;
begin
  for i:=10 to 99 do
  begin
    U := i mod 10;
    D := i div 10;
    If (u*d) mod (u+d) = 0
      then write (i:4);
  end;
end.
```

Exercice 7 :

```
Program exe7_121;
uses wincrt;
type tab=array[1..100] of real;
var n,i,nb:integer;
    R:tab;
    mg,somme:real; {mg: moyenne générale}
```

Begin

```
write('donner un entier n non nul et > à 20 : '); readln(n);
{remplissage aléatoire du tableau r par des réels entre [0..20]}
randomize;
for i:=1 to n do r[i] := random(201)/10;
```

{calcul de la moyenne mg}

```
somme:=0;
for i:=1 to n do somme := somme + r[i] ;
mg := somme / n;
```

{affichage des resultats demandés}

```
clrscr;
writeln ('le tableau r :');
for i:=1 to n do write (r[i]:8:2);
```

```
writeln;
writeln ('moyenne générale = ',mg:2:2);
```

```
writeln('les réels supérieurs ou égaux à mg:');
nb := 0;
```

```
for i:=1 to n do
  if r[i] >= mg then begin
    write(r[i]:8:2);
    inc(nb);
  end;
```

```
writeln;
writeln ('leur nombre : ',nb);
```

```
writeln('les réels inférieurs à mg:');
for i:=1 to n do if r[i] < mg then write(r[i]:8:2);
```

```
writeln;
writeln('leur nombre : ',n-nb);
```

End.

Exercice 8 :

Program exe8_121;

```
uses wincrt;
var ch:string;
    i,ce,ca,co,ci,cu,cy:integer;
```

begin

```
writeln('Saisir une chaîne de caractères'); readln(ch);
```

```
ca:=0; ce:=0; ci:=0; co:=0; cu:=0; cy:=0;
```

```
for i:=1 to length(ch) do
```

```
  case upcase(ch[i]) of
```

```
    'A' : inc(ca); {c.à.d. : ca:=ca+1}
```

```
    'E' : inc(ce);
```

```
    'I' : inc(ci);
```

```
    'O' : inc(co);
```

```
    'U' : inc(cu);
```

```
    'Y' : inc(cy);
```

```
  end;
```

```
if ca<>0 then writeln ('L'occurrence de "A" est ',ca);
```

```
if ce<>0 then writeln ('L'occurrence de "E" est ',ce);
```

```
if ci<>0 then writeln ('L'occurrence de "I" est ',ci);
```

```
if co<>0 then writeln ('L'occurrence de "O" est ',co);
```

```
if cu<>0 then writeln ('L'occurrence de "U" est ',cu);
```

```
if cy<>0 then writeln ('L'occurrence de "Y" est ',cy);
```

end.

Exercice 9 :

Program exe9_122;

```
uses wincrt;
type ind = (a,e,i,o,u,y);
var F : array [ind] of integer;
    ch:string;
    j:integer;
    k:ind;
```

begin

```
writeln('Saisir une chaîne de caractères'); readln(ch);
```

```
for j:=1 to length(ch) do
```

```
  case upcase(ch[j]) of
```

```
    'A' : inc(F[A]); {c.à.d. : F[A]:=F[A]+1}
```

```
    'E' : inc(F[E]);
```

```
    'I' : inc(F[I]);
```

```
    'O' : inc(F[O]);
```

```
    'U' : inc(F[U]);
```

```
    'Y' : inc(F[Y]);
```

```
  end;
```

```
For k:=a to y do
```

```
  begin
```

```
    if k=a then writeln ('L'occurrence de "A" est ',F[k]);
```

```
    if k=e then writeln ('L'occurrence de "E" est ',F[k]);
```

```
    if k=i then writeln ('L'occurrence de "I" est ',F[k]);
```

```
    if k=o then writeln ('L'occurrence de "O" est ',F[k]);
```

```
    if k=u then writeln ('L'occurrence de "U" est ',F[k]);
```

```
    if k=y then writeln ('L'occurrence de "Y" est ',F[k]);
```

```
  end;
```

end.

Exercice 12 :

Program exe12_122;

```
uses wincrt;
var i,n,lmax : integer;
    A : array [1..100] of string;
    Chmax : string;
```

begin

```
write('N = '); readln(n);
```

```
for i:=1 to n do readln(A[i]);
```

```
lmax := length(A[1]);
```

```
for i:=2 to n do
```

```
  if length(A[i])>lmax then lmax := length(A[i]);
```

```
writeln('La longueur de la chaîne la plus longue est: ',lmax);
```

```
for i:=1 to n do
```

```
  if length(A[i])=lmax then writeln(A[i]);
```

end.

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Exercice 3:

```
Program exe3_141;
uses wincrt;
Var t:array[1..30] of real;
    i,n,k:integer; v:real;
begin
  repeat
    write('N = '); readln(n);
  until n in [10..30];

  for i:=1 to n do
    repeat
      write('T[',i,'] = ');
      readln(t[i]);
    until (0<=t[i]) and (t[i]<=20);

  write('V = '); readln(v);

  i:=n+1; k:=0;
  Repeat
    i:=i-1;
    if t[i]=v
      then begin
        k:=k+1;
        if k<=2
          Then writeln(v:2:2,'existe à la position ',i);
        end;
    until (k=2) or (i=1);
end.
```

Exercice 4:

```
Program exe4_141;
uses wincrt;
var ch : string; i:integer;
begin
  Writeln('Saisir un mot'); readln(ch);
  i:=0;
  repeat
    i:=i+1;
  until (ch[i]=ch[i+1]) or (i=length(ch)-1);
  if (ch[i]=ch[i+1])
    then writeln(ch[i])
    else writeln('Pas de lettre double');
end.
```

Exercice 5:

```
Program exe5_141;
uses wincrt;
var ch : string; nb,i:integer;
begin
  Writeln('Saisir une phrase '); readln(ch);
  nb:=0; i:=1;
  repeat
    if ch[i] <> ' '
      then begin
        nb:=nb+1;
        while ch[i] <> ' ' do i:=i+1;
      end
    else i:=i+1;
  until (i=length(ch));
  writeln('le nombre des mots dans la phrase est : ', nb);
end.
```

Exercice 6:

```
Program exe6_141;
Uses Wincrt;
Var a, b : Integer;
Begin
  Repeat
    Writeln('Saisir deux entiers > 0');
    Readln (a, b);
  Until (a>0) and (b>0) ;
  While a<>b Do
    IF a>b Then a:= a-b
      Else b:= b-a ;
  Writeln ('PGCD = ', a);
End.
```

Exercice 10:

```
Program exe10_142;
uses wincrt;
type tab=array[1..100] of integer;
var t1,t2:tab;
    m,n:integer;
  (*****)
Procedure Saisies (Var x:Integer ; Var v:tab);
Var i, j : Integer;
Begin
  Repeat
    write('Nombre d''éléments : '); readln(x);
  until x in [3..100];
  Writeln ('Saisir la case 1'); Readln (v[1]); //éléments distincts
  FOR i:=2 To x Do
    Repeat
      Writeln ('Saisir la case ', i);Readln (v[i]);
      j:=i-1;
      While (j>1) and (v[i]<>v[j]) Do j:=j-1;
    Until (v[i]<>v[j]);
  End;
  (*****)
Function verif (x,y:integer ; v1,v2:tab): Boolean;
Var i,j:integer;
    test:boolean;
begin
  i:=0;
  repeat
    i:=i+1;
    j:=1;
    while v1[i]<>v2[j] do j:=j+1;
    test :=( j <= y);
  until (test=false) or (i=x);
  verif:=test;
end;
  (*****p.p*****)
BEGIN
  saisies(n,t1);
  saisies(m,t2);
  if verif(n,m,t1,t2)=true
    then writeln('t1 inclus dans t2')
    else if verif(m,n,t2,t1)=true
      then writeln('t2 inclus dans t1')
      else writeln('t1 et t2 non comparable');
END.
```

Exercice 11:

Program exe11_142;

uses wincrt;

type tab=array[1..50] of integer;

var t:tab;

plc,n,i,l:integer;

begin

repeat

write('n = ');

readln(n);

until (5<=n) and (n<=50);

for i:=1 to n do

repeat

readln(t[i]);

until t[i] in [0..9];

l:=1; plc:=1;

for i:=2 to n do

if t[i]>t[i-1]

then begin

l:=l+1;

if l>plc then plc:=l;

end

else l:=1;

writeln('Plus longue séquence croissante = ',plc);

end.

Exercice 12:

Program exe12_142;

uses wincrt;

var pas,y,x,yp:real;

(*****)

function f(x:real):real;

begin

f:=(x+1)+1/x;

end;

(*****)

begin

Writeln('Donner la valeur du pas de variation de x');

readln(pas);

x:=0;

repeat

x:=x+pas;

y:=f(x);

yp:=f(x+pas);

until (yp>=y) or (x>4);

writeln('Minimum de f = ',y:2:3,' en x = ', x:2:3);

end.