

```
{ -- FLORIDA HIGH SCHOOLS COMPUTING COMPETITION '80 }
{ -- PASCAL PROGRAM SOLUTIONS }

{1.1}
program One1T80;
{ -- This program will print terms of the Fibonacci sequence. }
var
  N, I: Integer;
  A: Array[1..99] of LongInt;

begin
  Write ('Enter number of terms: '); Readln (N);
  A[1] := 1; A[2] := 1;
  for I := 3 to N do
    A[I] := A[I-1] + A[I-2];
  for I := 1 to N do Write (A[I], ' ');
  Writeln;
end.

{1.2}
program One2T80;
{ -- This program will flash a symbol on/off every 10 seconds. }
uses Crt;
var
  I: Byte;

begin
  ClrScr;
  for I := 1 to 5 do begin
    Write ('*');
    delay (500);
    ClrScr;
    delay (6000);
  end;
end.

{1.3}
program One3T80;
{ -- This program will display the perimeter of a rectangle. }
var
  L, W: Integer;

begin
  Write ('Enter L, W: '); Readln (L, W);
  Writeln (L + L + W + W);
end.
```

```
{1.4}
program One4T80;
{ -- This program will convert Celcius to Fahrenheit. }
var
  C: Integer;

begin
  Write ('Enter C: '); Readln (C);
  Writeln ( (C * 9) / 5 + 32 :2:0);
end.
```

```
{1.5}
program One5T80;
{ -- This program will determine if input is numeral or not. }
var
  Ch: Char;

begin
  Write ('Enter character: '); Readln (Ch);
  if Ch in ['0' .. '9'] then
    Writeln ('NUMERAL')
  else
    Writeln ('NON-NUMERAL');
end.
```

```
{1.6}
program One6T80;
{ -- This program will determine gas mileage. }
var
  D, G: Integer;

begin
  Write ('Enter D, G: '); Readln (D, G);
  Writeln (D div G);
end.
```

```
{1.7}
program One7T80;
{ -- This program will test if a number is divisible by 5. }
var
  N: Integer;

begin
  Write ('Enter number: '); Readln (N);
  if N mod 5 = 0 then
    Writeln ('YES')
  else
    Writeln ('NO');
end.
```

```
{1.8}
program One8T80;
{ -- This program will print the length of a side of a triangle. }
var
  L, H: Integer;

begin
  Write ('Enter L, H: '); Readln (L, H);
  Writeln (Sqrt(H*H - L*L) :1:0);
end.
```

```
{1.9}
program One9T80;
{ -- This program will move a blob across the screen. }
uses Crt;
var
  C: Integer;

begin
  ClrScr;
  for C := 1 to 79 do begin
    GotoXY (C,2); Write ('*');
    Delay (10);
    GotoXY (C,2); Write (' ');
  end;
end.
```

```
{2.1}
program Two1T80;
{ -- This program will print the largest number in a sequence. }
var
  N, I, X, Max: Integer;

begin
  Write ('Enter number of #s: '); Readln (N);
  Max := -999;
  for I := 1 to N do begin
    Write ('Enter #: '); Readln (X);
    if X > Max then Max := X;
  end;
  Writeln (Max);
end.
```

```
{2.2}
program Two2T80;
{ -- This program will determine what figure is made. }
var
  S1, S2, S3, S4: Integer;

begin
  Write ('Enter 4 sides: '); Readln (S1, S2, S3, S4);
  if S4 = 0 then
    Writeln ('TRIANGLE')
  else if (S1 = S2) and (S2 = S3) and (S3 = S4) then
    Writeln ('SQUARE')
  else
    Writeln ('RECTANGLE');
end.
```

```
{2.3}
program Two3T80;
{ -- This program will sum numbers from 1000 to 2000. }
var
  I: Integer;
  S: LongInt;

begin
  S := 0;
  for I := 1000 to 2000 do S := S + I;
  Writeln (S);
end.
```

```
{2.4}
program Two4T80;
{ -- This program will reverse a 3 digit number. }
var
  N: String[3];
  I: Byte;

begin
  Write ('Enter number: '); Readln (N);
  for I := 3 downto 1 do
    Write (Copy(N, I, 1));
  Writeln;
end.
```

```
{2.5}
program Two5T80;
{ -- This program will draw a rectangle on the screen. }
uses Crt;
var
  I: Byte;

begin
  ClrScr;
  for I := 1 to 20 do Write ('*'); Writeln;
  for I := 1 to 5 do Writeln ('*', ' ':18, '*');
  for I := 1 to 20 do Write ('*');
end.
```

```
{2.6}
program Two6T80;
{ -- This program will print 3 numbers in increasing order. }
var
  I, J, X: Integer;
  A:      Array [1..3] of Integer;

begin
  Write ('Enter 3 number: '); Readln (A[1], A[2], A[3]);
  for I := 1 to 2 do
    for J := I+1 to 3 do
      if A[I] > A[J] then begin
        X := A[I]; A[I] := A[J]; A[J] := X;
      end;
    for I := 1 to 3 do Write (A[I], ' ');
  Writeln;
end.
```

```
{2.7}
program Two7T80;
{ -- This program will determine mean of set of numbers. }
var
  N, I, X, S: Integer;

begin
  Write ('Enter number of #s: '); Readln (N);
  S := 0;
  for I := 1 to N do begin
    Write ('Enter #: '); Readln (X);
    S := S + X;
  end;
  Writeln (S / N :3:1);
end.

{2.8}
program Two8T80;
{ -- This program will determine if a number is even or odd. }
var
  N: Integer;

begin
  Write ('Enter number: '); Readln (N);
  if N mod 2 = 0 then
    Writeln ('EVEN')
  else
    Writeln ('ODD');
end.

{2.9}
program Two9T80;
{ -- This program will determine if a number is prime. }
var
  N, I, Sq: Integer;

begin
  Write ('Enter number: '); Readln (N);
  Sq := Trunc( Sqrt(N) );
  if N mod 2 = 0 then begin
    Writeln ('NO'); Exit; end
  else
    for I := 3 to Sq do
      if N mod I = 0 then begin
        Writeln ('NO'); Exit; end;
    Writeln ('YES');
  end.
end.
```

```
{2.10}
program Two10T80;
{ -- This program will compute value of change. }
const
  Coin: Array [1..4] of String[8] =
    ('QUARTERS', 'DIMES', 'NICKELS', 'PENNIES');
  Amount: Array[1..4] of Integer = (25, 10, 5, 1);
var
  I, X, S: Integer;

begin
  S := 0;
  for I := 1 to 4 do begin
    Write ('How many ', Coin[I], '? '); Readln (X);
    S := S + Amount[I] * X;
  end;
  Writeln (S, ' CENTS');
end.

{2.11}
program Two11T80;
{ -- This program will count number of e's in sentence. }
var
  I, E: Byte;
  Sent: String[80];

begin
  Write ('Enter sentence: '); Readln (Sent);
  E := 0;
  for I := 1 to Length(Sent) do
    if Copy(Sent, I, 1) = 'E' then Inc(E);
  Writeln (E);
end.
```

```
{3.1}
program Thr1T80;
{ -- This program allows user to answer multiplication facts. }
var
  X, Y, N: Integer;

begin
  Randomize; X := Random(13); Y := Random(13);
  Write (X, ' X ', Y, ' = '); Readln (N);
  if X * Y = N then
    Writeln ('RIGHT')
  else
    Writeln ('WRONG');
end.
```

```
{3.2}
program Thr2T80;
{ -- This program will randomize the digits 0..9. }
var
  I, X, Y: Byte;
  A: Array [0..9] of Byte;

begin
  Randomize;
  for I := 0 to 9 do A[I] := I;
  for I := 0 to 9 do begin
    X := Random(10);
    Y := A[I]; A[I] := A[X]; A[X] := Y;
  end;
  for I := 0 to 9 do Write (A[I], ' ');
  Writeln;
end.
```

```
{3.3}
program Thr3T80;
{ -- This program will round a number to nearest ten. }
var
  N: Integer;

begin
  Write ('Enter number: '); Readln (N);
  Writeln (Trunc((N+5)/10) * 10);
end.
```



```
{3.4}
program Thr4T80;
{ -- This program will change a number from base 10 to 4. }
var
  N, I, J, X, Pow: Integer;

begin
  Write ('Enter number: '); Readln (N);
  J := Trunc(Ln(N) / Ln(4));
  Pow := 1;
  for I := 0 to J do Pow := Pow * 4;
  for I := J downto 0 do begin
    Pow := Pow div 4;
    X := Trunc(N / Pow); Write (X);
    N := N - X * Pow;
  end;
  Writeln;
end.
```

```
{3.5}
program Thr5T80;
{ -- This program will change a number from base 3 to 10. }
var
  N: String[7];
  I, L, S, X, Code, Pow: Integer;

begin
  Write ('Enter number: '); Readln (N);
  L := Length(N); Pow := 1; S := 0;
  for I := L downto 1 do begin
    Val(Copy(N, I, 1), X, Code);
    S := S + X * Pow;
    Pow := Pow * 3;
  end;
  Writeln (S);
end.
```

```
{3.6}
program Thr6T80;
{ -- This program will change a decimal to a fraction. }
var
  A: Char;
  Num: String[5];
  I, L, N, D, Code: Integer;
```

```
begin
  Write ('Enter decimal: '); Readln (Num);
  Write ('R or T: '); Readln (A);
  L := Length(Num) - 1;
  Val (Copy(Num, 2, L), N, Code);
  D := 1;
  for I := 1 to L do D := D * 10;
  if A = 'R' then D := D - D div 10;
  I := N;
  while (N mod I <> 0) or (D mod I <> 0) do
    Dec(I);
  Writeln (N div I, '/', D div I);
end.
```

```
{3.7}
program Thr7T80;
{ -- This program will represent and amount of money. }
const
  Coin: Array [1..5] of String[8] =
    ('HALF', 'QUARTER', 'DIMES', 'NICKELS', 'PENNIES');
  Amount: Array [1..5] of Integer = (50, 25, 10, 5, 1);
var
  C, X, I: Integer;

begin
  Write ('Enter cents: '); Readln (C);
  for I := 1 to 5 do begin
    X := C div Amount[I];
    Writeln (X, ' ', Coin[I]);
    C := C - X * Amount[I];
  end;
end.
```

```
{3.8}
program Thr8T80;
{ -- This program will allow user to guess a generated #. }
var
  X, G: Byte;

begin
  Randomize;
  X := Random(10) + 1; G := 0;
  while X <> G do begin
    Write ('Enter guess: '); Readln (G);
    if G > X then Writeln ('TOO HIGH');
    if G < X then Writeln ('TOO LOW');
  end;
  Writeln ('RIGHT ON');
end.
```

```
{3.9}
program Thr9T80;
{ -- This program will find values for a,b,c,d. }
var
  A, B, C, D, N, M, I, APow, CPow: Integer;

begin
  for A := 1 to 9 do
    for B := 0 to 9 do
      for C := 0 to 9 do
        for D := 0 to 9 do begin
          N := A*1000 + B*100 + C*10 + D;
          APow := 1;
          for I := 1 to B do APow := APow * A;
          CPow := 1;
          for I := 1 to D do CPow := CPow * C;
          M := APow * CPow;
          if N = M then begin
            Writeln ('A=', A, ' B=', B, ' C=', C, ' D=', D);
            exit;
          end;
        end;
      end;
    end;
  end.
end.
```

```
{3.10}
program Thr10T80;
{ -- This program will print day of week for a date. }
const
  Days: Array[1..12] of Integer =
    (31, 29, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31);
var
  M, D, I, S, X: Integer;
  Name: String[21];

begin
  Name := 'MONTUEWEDTHUFRISATSUN';
  Write ('Enter month, day: '); Readln (M, D); S := 0;
  for I := 1 to M-1 do
    S := S + Days[I];
  S := S + D;
  X := S mod 7;
  Writeln (Copy(Name, X*3+1, 3));
end.
```

```
{3.11}
program Thr11T80;
{ -- This program will simulate an "etch-a-sketch". }
uses Crt;
var
  Row, Col: Byte;
  A: Char;

begin
  ClrScr; Row := 12; Col := 40;
  repeat
    GotoXY (Col, Row); Write ('*');
    A := Readkey;
    case A of
      'I': Dec(Row);
      'M': Inc(Row);
      'J': Dec(Col);
      'K': Inc(Col);
    end;
  until A = Char(27);
end.
```

```
{3.12}
program Thr12T80;
{ -- This program will determine if a word is a palindrome. }
var
  A: String[12];
  L, R: String[1];
  I, Len: Byte;

begin
  Write ('Enter word: '); Readln (A);
  Len := Length(A); I := 1;
  repeat
    L := Copy (A, I, 1);
    R := Copy (A, Len-I+1, 1);
    if L <> R then Write ('NOT ');
    Inc(I);
  until (I = Len) or (L <> R);
  Writeln ('PALINDROME');
end.
```