

EX01 6 points

1) $(12)_{10} = (1100)_2$ $(12)_{10} = (14)_8$

$(111010)_2 = (3A)_{16}$ $(111010)_2 = (72)_8$

e) $E1 = (a+b=c) \text{ OR } (b > c) \text{ and } f$

l'opérateur and est prioritaire par rapport à l'opérateur de comparaison (>) et le and s'applique au operands de type booléen.

3) $E2 = (2 * n + y) / (n + 3 * y) - (2 \text{ mod } y * n)$

- (1) (2) (7) (4) (3) (8) (5) (6)

$E2 = \text{Not} (3 * a \text{ div } 2 <= b) \text{ OR } (b >= 8) \text{ and } (a * b = 6)$

- (7) (1) (2) (3) (9) (4) (8) (5) (6)

4) $E4 = \sqrt{(a-b)^2 + (c-d)^2} \Rightarrow E4 = \text{sqrt}(\text{sqrt}(a-b) + \text{sqrt}(c-d))$

5) $E5 = a + b/c + ((d/3 + 4) / 10 + a) / b$

Exo 2: (05 points)

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1) Program Somme;
   USES WinCRT;
   Var i, N, S: integer;
       E: real;

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Begin

```
Read (N);
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E := 1;
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```
S := 1;
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```
for i := 2 to N do
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Begin

```
S := S + i;
```

```
E := E + 1/S;
```

end;

```
write ('E = ', E);
```

end.

Instructions	N	i	S	E
Read (N)	5			
S ← 1 E ← 1			1	1
Pour i ← 2 S ← S + i E ← E + 1/S		2	1 + 2	$1 + \frac{1}{1+2}$
Pour i ← 3 S ← S + i E ← E + 1/S		3	1 + 2 + 3	$1 + \frac{1}{1+2} + \frac{1}{1+2+3}$
Pour i ← 4 S ← S + i E ← E + 1/S		4	1 + 2 + 3 + 4	$1 + \frac{1}{1+2} + \frac{1}{1+2+3} + \frac{1}{1+2+3+4}$
Pour i ← 5 S ← S + i E ← E + 1/S		5	1 + 2 + 3 + 4 + 5	$1 + \frac{1}{1+2} + \frac{1}{1+2+3} + \frac{1}{1+2+3+4} + \frac{1}{1+2+3+4+5}$
l'expression générale de E				
$E = \frac{1}{1} + \frac{1}{1+2} + \frac{1}{1+2+3} + \frac{1}{1+2+3+4} + \dots + \frac{1}{1+2+3+4+5+\dots+N}$				

x03: (6 points)

Program facture;
USES winCRT;

Var A_ind, N_ind, con: integer; (0,5)
MF: real; (0,5)

Begin

Read (A_ind, N_ind); (0,5)

con := N_ind - A_ind; (0,5)

if con <= 125 then
MF := con * 1,78

ELSE
if con <= 250 then

MF := 222 + (con - 125) * 4,17

ELSE
if con <= 600 then

MF := 743 + (con - 250) * 4,81

ELSE
MF := 2667 + (con - 600) * 5,48

write (' le Montant de la facture = ', MF); (0,5)
ENDo

3,5

Exo 4: (23 points)

$\langle \text{indice} \rangle \leftarrow \langle \text{valeur initiale} \rangle$ (0,5)

1) tant-que $\langle \text{indice} \rangle \leq \langle \text{valeur finale} \rangle$ faire (0,5)

instruction 1
instruction 2

$\langle \text{indice} \rangle \leftarrow \langle \text{indice} \rangle + 1$ (0,5)

fin tant-que

2) if $\langle \text{condition} \rangle$ then:

(0,5) $\left\{ \begin{array}{l} \text{Begin} \\ \text{instruction 1;} \\ \text{instruction 2;} \\ \text{end} \end{array} \right.$ (0,5)

ELSE

$\left\{ \begin{array}{l} \text{Begin} \\ \text{instruction 3;} \\ \text{instruction 4;} \\ \text{end;} \end{array} \right.$ (0,5)