

TP 0 : prise en main du langage

Compiler, exécuter et comprendre chacun des programmes suivants.

Les fichiers correspondants sont en ligne à l'adresse <http://lpma-paris.fr/~roux/>.

Programme 1

```
#include <iostream>

3 int main(void)
  {
    if (0.1 + 0.2 == 0.3)
6       {
          std::cout << "0.1 + 0.2 vaut 0.3\n";
        }
    else
9       {
          std::cout << "0.1 + 0.2 ne vaut pas 0.3\n";
12      }

    return 0;
15 }
}
```

Programme 2

```
#include <iostream>

3 int main(void)
  {
6     std::cout << "1/3 + 1/3 + 1/3 vaut " << 1/3 + 1/3 + 1/3 << "\n";

    return 0;
9 }
}
```

Programme 3

```
#include <iostream>

3 int i = 1;

void f(int i)
6 {
  i = 2;
}

9 void g(int j)
{
12   i = j;
}

15 int main(void)
{
18   std::cout << "Avant la declaration,\ti = " << i << "\n";

   int i = 3;
   std::cout << "Après la declaration,\ti = " << i << "\n";
21   f(i);
   std::cout << "Après l'appel de f,\ti = " << i << "\n";
   g(4);
24   std::cout << "Après l'appel de g,\ti = " << i << "\n";
   {
       int i = 5;
27       std::cout << "Dans le bloc entre { },\ti = " << i << "\n";
   }
   std::cout << "Hors du bloc,\t\ti = " << i << "\n";
30
   return 0;
}
```

Programme 4

```
#include <iostream>

3 int main(void)
{
   int i;
6   i = 1+1;
   if (i=3)
       {
9           std::cout << "1+1 = 3\n";
       }

12   return 0;
}
```

Programme 5

```
#include <iostream>

3
int main(void)
{
6   std::cout << "Si i vaut 2,\n";

   int i = 2;
9   std::cout << "(i=1) renvoie " << (i=1);
   std::cout << "\tpuis\t i vaut " << i << "\n";

12  i = 2;
   std::cout << "(i==1) renvoie " << (i==1);
   std::cout << "\tpuis\t i vaut " << i << "\n";

15  i = 2;
   std::cout << "(i++) renvoie " << (i++);
18  std::cout << "\tpuis\t i vaut " << i << "\n";

   i = 2;
21  std::cout << "(++i) renvoie " << (++i);
   std::cout << "\tpuis\t i vaut " << i << "\n";

24  i = 2;
   std::cout << "(i+=1) renvoie " << (i+=1);
   std::cout << "\tpuis\t i vaut " << i << "\n";

27  i = 2;
   std::cout << "(i*=2) renvoie " << (i*=2);
30  std::cout << "\tpuis\t i vaut " << i << "\n";

   return 0;
33 }
```

Programme 6

```
#include <iostream>

3
int main(void)
{
6   int x = 0.5;
   if (x == 0)
   {
9       std::cout << "0.5 est egal a 0.\n";
   }

12  return 0;
}
```

Programme 7

```
#include <iostream>

3
int main(void)
{
6   std::cout << 0100 << "\n";

   std::cout << 0x10 << "\n";
9
   std::cout << 1.1e4 << "\n";

12  std::cout << 0x1.8p10 << "\n";

   return 0;
15 }
```

Programme 8

```
#include <iostream>
#include <cmath>

3

const int N = 100;
6 const double alpha = 2*M_PI/N;

9
int main(void)
{
12  float x=0;
     double y=0;
     for (int i=0; i<N; i++)
         {
15         x += 1000*cos(i*alpha);
           y += 1000*cos(i*alpha);
         }

18
     std::cout << "Valeur theorique :\t0\n";
     std::cout << "Valeur 1 :\t\t" << x << "\n";
21  std::cout << "Valeur 2 :\t\t" << y << "\n";
     return 0;
}
```

Programme 9

```
#include <iostream>

3
unsigned fact(unsigned n)
{
   int resultat = 1;
6   for (unsigned i=1 ; i<=n ; i++)
       {
           resultat *= i;
9       }
   return resultat;
}

12
int main(void)
{
15  for (unsigned n=0; n<37; n++)
       {
           std::cout << fact(n) << "\n";
18       }
   return 0;
}
```