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://lpsm.paris/~roux/`.

Programme 1

```
#include <iostream>

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

  return 0;
}
```

Programme 2

```
#include <iostream>

int main(void)
{

  std::cout << "1/3 + 1/3 + 1/3 vaut " << 1/3 + 1/3 + 1/3 << "\n";

  return 0;
}
```

Programme 3

```
#include <iostream>

int i = 1;

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

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

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

  int i = 3;
  std::cout << "Apres la declaration,\ti = " << i << "\n";
  f(i);
  std::cout << "Apres l'appel de f,\ti = " << i << "\n";
  g(4);
  std::cout << "Apres l'appel de g,\ti = " << i << "\n";
  {
        int i = 5;
        std::cout << "Dans le bloc entre { },\ti = " << i << "\n";
  }
  std::cout << "Hors du bloc,\t\ti = " << i << "\n";

  return 0;
}
```

Programme 4

```
#include <iostream>

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

  return 0;
}
```

Programme 5

```
#include <iostream>

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

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

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

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

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

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

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

  return 0;
}
```

Programme 6

```
#include <iostream>

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

  return 0;
}
```

Programme 7

```
#include <iostream>

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

  std::cout << 0x10 << "\n";

  std::cout << 1.1e4 << "\n";

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

  return 0;
}
```

Programme 8

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

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


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

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

Programme 9

```
#include <iostream>

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

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