Quiz

Numbers

TOTAL POINTS 5

Question 1 (1 pt)

How many decimal digits could be stored in a signed 32-bit integer variable (also known as **int** in C++ and Java)?

Question 2 (1 pt)

How many decimal digits could be stored in a signed 64-bit integer variable (also known as **long long** in C++ and **long** in Java)?

Question 3 (1 pt)

Check all fragments of code, where an overflow **does** happen. The code is given in C++, consider **int** to be a 32-bit signed integer, and **long long** — a 64-bit signed integer.

```
int n = 100000;
int m = 100;
int res = 0;
for (int i = 1; i <= n; ++i) {
  res += n / i;
}
cout << res * m << '\n';
```

sum (1/n) croit tres lentement meme si ca diverge. Pour n= 100000 ca fait 13.

```
int a = 100;

int b = 100000000;

cout << a * b << '\n';
```

```
long long n = 100 * 1000;
long long m = 1000 * 1000;
long long res = 0;
for (int i = 0; i < n; ++i) {
  for (int j = 0; j < m; ++j) {
    res += 1000 * 1000;
```

```
  }
}
cout << res * 1000 << '\n';
```

```
int n = 10000;
int m = 1000;
int res = 0;
for (int i = 1; i <= n; ++i) {
  res += i;
}
cout << res * m << '\n';
```

```
1 cout << (long long)10000 * 1000 * 10000 << '\n';
```

Question 4 (1 pt)

How many decimal digits of **precision** could be stored in a **double** variable?

7

12

18

15

Question 5 (1 pt)

Imagine that you should output a floating point number as the answer to some problem, and the statement says that the absolute or relative difference to the correct answer should be no more than 10^{-3}. Check those answer/output pairs, where the output would be accepted as correct, according to this rule.

5000.0 and 4982.76

1000000.0 and 999013.0

1.0 and 0.9991

0.0001 and 0.0009812