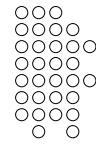


## 有號整數的溢位

```
01 #include <stdio.h>
02 int main()
03 {
04     long int a, b, c;
05     a = 0;
06     b = a + 1; // b = 1, > a
07
08     while (b > a) {
09         a++;
10         b++;
11     }
12
13     printf("a= %ld, b= (a+1)= %ld\n", a, b);
14     return 0;
15 }
```

請問迴圈會結束嗎?  
預測一下總共會執行幾次?  
實驗一下總共會執行幾次?

1



## 倍精準浮點數精確位數的上限與溢位

```
01 #include <stdio.h>
02 #include <math.h>
03
04 int main()
05 {
06     double a, b, c;
07     a = 4.0*atan(1.0); // a= 3.1415926 ...
08     b = a + 1.0; // b= 4.1415926 ..., > a
09
10     while (b > a) {
11         a *= 1.001;
12         b = a + 1.0;
13     }
14
15     printf("a = %.31f, b = (a + 1.0) = %.31f\n", a, b);
16 }
```

請問迴圈會結束嗎?  
實驗一下總共會執行幾次?  
請解釋原因?

如果改成 `while (b >= a)`  
迴圈會結束嗎?  
請解釋原因?

2

