Exercises 4.1

Learn C With Babbo

1. Give the output of the following programs:

   (a)
```c
#include <stdio.h>

int twice(int a) {
    return a * 2;
}

int main(void) {
    printf("%d\n", 4 * twice(3));
    return 0;
}
```

   (b)
```c
#include <stdio.h>

int half_and_decrement(int num) {
    num = num / 2;
    printf("%d\n", num);
    num = num - 1;
    return num;
}

int main(void) {
    int a = 70;
    printf("%d\n", half_and_decrement(a));
    printf("%d\n", a);
    a = half_and_decrement(a);
    printf("%d\n", a);
    return 0;
}
```

   (c)
```c
#include <stdio.h>

double average(double a, double b) {
    a = a / 2;
    printf("%d\n", a);
    b = b / 2;
```

```
    printf("%d\n", b);
    return a + b;
}

int main(void) {
    double a = 3.14;
    double b = 2.72;
    printf("%f\n", average(a, b));
    printf("%f\n", a);
    printf("%f\n", b);
    return 0;
}
```

2. What is wrong with each of the following function definitions?

   (a)
```
int func1(int a) {
    int func2(int b) {
        return b / 2;
    }
    return func2(a);
}
```

   (b)
```
#include <stdio.h>

void goodbye() {
    printf("See ya!\n");
}
```

   (c)
```
int main(void) {
    int func(int a) {
        return a * 2;
    }
    int a = func(2);
    return 0;
}
```

3. Write a function called `scan_int` taking no arguments that will return an `int` read from user input.

4. Write a function called `square` that returns the square of a `double` argument.

5. Write a function called `print_square`that prints the square of a `double` argument but does not return it (or anything else).