

# 1 Functions - 1

1. Consider the following definition for function `foo`.

```
1      int foo(int a) {  
2          return a*a;  
3      }
```

- (a) What is the value of `result` when the following code is executed?

```
1      int result = foo(4);
```

- (b) What is the value of `result` when the following code is executed?

```
1      int result = foo(foo(4));
```

- (c) What is the value of `result` when the following code is executed?

```
1      int result = foo(foo(4) - 6);
```

- (d) What is the value of `result` when the following code is executed?

```
1      int result = foo(foo(4) - foo(3));
```

2. Consider the following definition for function `foo`.

```
1  int foo(int a, int b) {  
2      if(a > b) {  
3          return a;  
4      }  
5      else {  
6          return b;  
7      }  
8  }
```

- (a) What is the value of `result` when the following code is executed?

```
1      int result = foo(4, 8);
```

- (b) What is the value of `result` when the following code is executed?

```
1      int result = foo(13, 8);
```

- (c) What is the value of `result` when the following code is executed?

```
1      int result = foo(foo(9, 5), 7);
```

- (d) Without knowing the values of `a`, `b`, `c`, `d`, `e`, `f`, what is it that you can tell about the value of `result` when the following code executes?

```
1      int result = foo(foo(foo(a, b), foo(c, d)), foo(e  
        , f));
```

- (e) Without knowing the values of **a**, **b**, **c**, **d**, **e**, **f**, what is it that you can say about the value of **result1**, **result2** (comparatively) when the following code executes?

<pre>1 <b>int</b> result1 = foo(foo(foo(a, b), foo(c, d)), foo(e, f)); 2 <b>int</b> result2 = foo(foo(foo(foo(foo(a, b), c), d), e), f);</pre>
--

3. Write a function that when passed two floating-point variables, returns the smaller of the two.
4. Write a function that when passed two floating-point variables, returns **true** if they are both positive, and **false** otherwise.
5. Write a function that when passed two integers, returns **true** if they are both even, and **false** otherwise.
6. Write a function that when passed two integers, returns the highest integer by which they are both divisible. Such an integer is called the *greated common divisor*. For example, greatest common divisor of 40 and 24 is 8, that of 32 and 27 is 1, that of 12 and 12 is 12, that of 24 and 48 is 24.