

Answer the questions in the spaces provided on the question sheets. If you need more space for your answer, continue on the back of the page. Answer the questions without compiling and running the codes below on a computer.

Name: _____

Date: _____

Question:	1	2	3	Total
Points:	15	10	15	40
Score:				

1. Describe exactly but briefly what is the output of the program.

```
#include <stdio.h>
```

```
double fun(double);
```

```
double fun (double x)
{
    x += 5.;
    printf ("fun: %f\n", x);
    return x;
}
```

```
int main (void)
{
    double x;

    x = 2.;
    printf ("main_1: %f\n", x);
    fun (x);
    printf ("main_2: %f\n", x);
    return 0;
}
```

- (a) (5 points) The first executed printf statement:

- (b) (5 points) The second executed printf statement:

- (c) (5 points) The third executed printf statement:

-
2. The program below is supposed to print 20 stars (*), one per line, but it doesn't.

(a) (5 points) Describe exactly but briefly what is the output of the program:

(b) (5 points) Fix the program such that the originally intended output is produced. (Please use a red pen to mark the changes in the code.)

```
#include <stdio.h>
```

```
int main (void)
{
    for (int i = 0; i < 20; i++)
        printf ("*\n");

    return 0;
}
```

3. The program below is supposed to convert the temperature of boiling water (212F°) from Fahrenheit (f) to Celsius (c), using the following conversion formula:

$$c = \frac{5}{9}(f - 32)$$

but it doesn't do it right.

(a) (5 points) Describe exactly but briefly what is the output of the program:

(b) (10 points) Fix it such that the correct output is produced. Suggest at least two distinct ways to do this. (Please use pens of different colors to indicate the changes in the code.)

```
#include <stdio.h>
```

```
int main(void)
{
    int c, f;

    f = 212; /* boiling water temperature at 1 atm. pressure, in F */
    c = (5/9)*(f - 32);
    printf("Boiling water temperature: %d_F or %d_C\n", f, c);

    return 0;
}
```