HW #5

Pdf file only, with heading:
HW #4
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Due: 11:00 pm, Sunday Oct. 6, 2018 at Google Classroom

1. (11 pts) Give the output of the following program fragments.
   a. Program 1

```
int value = 7;
do {
    printf("%d ",value);
    value *= 2;
} while (value < 225);
```

The output of the code is: 7142856112224

   b. Program 2

```
int alpha = 10, beta = 10;
for (alpha = 0; alpha < 5; alpha++) {
    for (beta = 100; beta < 300; beta = beta + 100)
        printf("%d", alpha);
    printf("\n");
}
```

The output of the code is:
00
11
22
33
44

2. (12 pts) Give the value of x and y in each of the following cases, after the execution of both statements.

Program 1:

```
int x = 0, y = 0;
y = x = 11, 12, 13, 14;
```

x = 11, y = 11

Program 2:

```
int x = 0, y = 0;
y = x = (11, 12, 13, 14);
```

x = 14, y = 14

3. (27 pts) Write a nested loop to print the following output:
   a. Each row prints 11 consecutive integers in increasing order (see below).
   b. The first row starts from number 100.
   c. The following row starts from a number that is smaller than the previous row's starting number by 10.
   d. The last row has a starting number 50.
   e. Replace "… … …" below by the actual values using the above rules.

```
100 101 102 103 104 105 106 107 108 109 110
 90  91  92  93  94  95  96  97  98  99 100
         …   …   …
         …   …   …
 50  51  52  53  54  55  56  57  58  59  60
```

```
for (number = 100; number >=50; number -= 21) {
      limit = number + 10;
      while (number <= limit) {
         printf("%d ", number);
         number += 1;
      }
      printf("\n");
   }
```

(The following material will be covered during the Wednesday class.)

4. (8 pts) Mark below each of the following C constants using its representation type:
   decimal, octal or hexadecimal.

0x777	32	101110	022
Hex	**Decimal**	**Binary**	**Octal**

5. (12 pts) For each constant below tell whether it is legal or illegal. For each illegal one, tell why it is illegal. For each legal one, mark its representation type: decimal, octal or hexadecimal.
   ABFFF **Illegal, hex numbers must be preceded with "0x"**

   0x12 **Legal, hexadecimal**
   0799 **Illegal, the largest digit in octal is a 7**
   0123456 **Legal, octal**

6. (30 pts) What is the value (in decimal) of X in each case below? Give the expression based on which you arrive at your value. Assume 4 bytes are

used to store int and float, 8 for long and double.

a. int X;
   X = ‘A’ + 7;
   X = 72. A has an ascii value of 65. 65 + 7 = 72

b. float X;
   X = sizeof(char) / (float) sizeof(2.0);
   X = .125000. A char is 1 byte and 2.0 is a double and hence has size 8. 1/8 = .125000

c. int C = 5;
   X = ‘A’ + ‘B’ – 2*C + ‘C’;

X = 188. ‘A’ has an ascii value of 65, ‘B’ is 66. 2*C = 10. ‘C’ has an ascii value of 67. 65 + 66 = 131. 131 – 10 = 121. 121 + 67 = 1883