# COMP2510 – Review Exercise 2 (Winter 2017)

1. How many asterisks (*) are printed by each of the following?

   (a)
   ```
   int  i;
   for (i = 2; i < 10; i++) {
     putchar('*');
     if (i > 7)
       break;
   }
   ```

   (b)
   ```
   int  i;
   for (i = 1; i < 10; i++) {
     if (i % 3 != 1)
       continue;
     putchar('*');
   }
   ```

   (c)
   ```
   int i, j;
   for (i = 1; i < 8; i += 2)
     for (j = 0; j <= i; j++)
       putchar('*');
   ```

2. What is the output of each of the following?

   (a)
   ```
   int  n = 7;
   while (n > 2)
     printf("%d ", --n);
   ```

   (b)
   ```
   int  n = 7;
   while (n-- > 2)
     printf("%d ", n);
   ```

   (c)
   ```
   int  n = 7;
   while (--n > 2)
     printf("%d ", n);
   ```

   (d)
   ```
   int a = 1, b = 1, c = -1;
   c = --a && b++;
   printf("%d %d %d", a, b, c);
   ```

   (e)
   ```
   int a = 0, b = 0, c = -1;
   c = a++ || ++b;
   printf("%d %d %d", a, b, c);
   ```

   (f)
   ```
   int  m = 11, n = 22;
   int *p = &m;
   int *q = &n;
   q = p;
   m++; n--;
   printf("%d %d", *p, *q);
   ```

   (g)
   ```
   int  m = 11, n = 22;
   int *p = &m;
   int *q = &n;
   *q = *p;
   m++; n--;
   printf("%d %d", *p, *q);
   ```

(h)
```
int  m = 11, n = 22;
int *p = &m;
int *q = &n;
*q = *p + 1;
*p = *q + 1;
printf("%d %d", m, n);
```

(i)
```
int  m = 11, n = 22;
int *p = &m, *q = &n;
int **pp = &p, **qq = &q;
int *r = *pp;
*pp = *qq;
*qq = r;
printf("%d %d", *p, *q);
```

(j)
```
char a[32] = "0123456789";
sscanf("hi", "%s", &a[4]);
printf("%s", &a[2]);
```

3. What are the values of `m`, `n`, `p` & `f` (if defined) in each of the following?

(a)
```
int  m = 4, n = 5, p = 6;
m = sscanf("  12hello  34", "%d %d", &n, &p);
```

(b)
```
int  m = 4, n = 5, p = 6;
m = sscanf("12-34.50", "%d %d", &n, &p);
```

(c)
```
int    m = 4, n = 5;
float  f = 1.0;
m = sscanf("34.50", "%f %d", &f, &n);
```

4. Assume that `unsigned shorts` are 16-bit & given:

```
unsigned short m = 0x89ab, n = 0xef67;
```

(a) Find the value of `m & n` in hexadecimal.

(b) Find the value of `~m | n` in hexadecimal.

(c) Find the value of `m ^ n` in hexadecimal.