Old exam problems

- Assume that we have included proper header files (e.g., <stdio.h>).
- Assume that we are using 64-bit OS.

(a) (10 points) What's the output of this code snippet?

```
int a[10], i, *p =a;

for (i =0; i < 10; i++)
    a[i] = i;

printf("value 1 = %d\n", *p++);
printf("value 2 = %d\n", (*p)++);
printf("value 3 = %d\n", (*(p+4))--);
printf("value 4 = %d\n", *--p);
printf("value 5 = %d\n", ++*p);
```

Output:

value 1 = _____ (2 points)

value 2 = _____ (2 points)

value 3 = _____ (2 points)

value 4 = _____ (2 points)

value 5 = _____ (2 points)

(b) (5 points) What's the output of this code snippet? (%zu prints a value of unsigned long int, %p prints the address of a pointer)

```
int (*p)[10];

p = malloc(sizeof(int) * 20);    // assume malloc() is successful
printf("sizeof(p) = %zu\n", sizeof(p));
printf("sizeof(*p) = %zu\n", sizeof(*p));
printf("p1 =%p\n", (void *)p++);
printf("p2 =%p\n", (void *)p);
```

Output:

sizeof(p) = _____ (1 points)

sizeof(*p) = _____ (2 points)

p1 = 0x7c2010

p2 = _____ (2 points)

(c) (5 points) What's the output of this code snippet?

```
void f(int a[5], int b[], int *c)
{
    printf("1: %zu 2:%zu 3:%zu 4:%zu 5:%zu\n",
            sizeof(a), sizeof(b), sizeof(*a), sizeof(*b), sizeof(*c));
}
```

Output: (1 point for each)

1: _____ 2: _____ 3:_____ 4:_____ 5:_____