**OUTPUT:**

1: a = 0x7ffe34113f50, b = 0x5574f69b42a0, c = 0x7ffe34113f77

2: a[0] = 200, a[1] = 101, a[2] = 102, a[3] = 103

3: a[0] = 200, a[1] = 300, a[2] = 301, a[3] = 302

4: a[0] = 200, a[1] = 400, a[2] = 301, a[3] = 302

5: a[0] = 200, a[1] = 128144, a[2] = 256, a[3] = 302

6: a = 0x7ffe34113f50, b = 0x7ffe34113f54, c = 0x7ffe34113f51

**Step1**

Printf

It is also memory location of a, b, c

1: a = 0x7ffe34113f50, b = 0x5574f69b42a0, c = 0x7ffe34113f77

content of a, b, c

a = 873545590, b = 0, c = -1075533568

**Step2**

printf 2: a[0] = 200, a[1] = 101, a[2] = 102, a[3] = 103

location a = 0x7ffe34113f50, b = 0x5574f69b42a0, c = 0x7ffe34113f50

content a = 200, b = 0, c = 200

justification

c = a; //c points to a the location a points to

for (i = 0; i < 4; i++)

a[i] = 100 + i;

c[0] = 200; //then a[0]=200 too

**Step3**

printf 3: a[0] = 200, a[1] = 300, a[2] = 301, a[3] = 302

location a = 0x7ffe34113f50, b = 0x5574f69b42a0, c = 0x7ffe34113f50

content a = 200, b = 0, c = 200

justification

c[1] = 300; //then a[1]=300 too

\*(c + 2) = 301; //c[2]=301 then a[2]=301

3[c] = 302; //c[3]=302 then a[3]=302

**Step4**

Printf 4: a[0] = 200, a[1] = 400, a[2] = 301, a[3] = 302

location a = 0x7ffe34113f50, b = 0x5574f69b42a0, c = 0x7ffe34113f54

content a = 200, b = 0, c = 400

justification

c = c + 1; //c points to next location new location of c = old one + 4 (int = 4 bytes)

\*c = 400; //new c 🡪 a[1]=400

**Step5**

Printf 5: a[0] = 200, a[1] = 128144, a[2] = 256, a[3] = 302

location a = 0x7ffe34113f50, b = 0x5574f69b42a0, c = 0x7ffe34113f55

content a = 200, b = 0, c = 500

justification

c = (int \*) ((char \*) c + 1);

// c points to next location new location of c = old one + 1 (char = 1 byte)

//Then convert pointer to int pointer

\*c = 500;

//before

(00000000 00000000 00000001 00101101), (00000000 00000000 00000001 10010000) 🡪 0x--54

(301) (400)

a[2]=301 a[1]=400

after

00000000 00000000 00000001 (00000000, 00000000 00000001 11110100) 10010000

(500)

a[2]=256 a[1]=128144

**Step6**

Printf and it is also memory location of a, b, c

6: a = 0x7ffe34113f50, b = 0x7ffe34113f54, c = 0x7ffe34113f51

Content a = 200, b = 128144, c = -1879048192

justification

b = (int \*) a + 1;

//b points to next location after a, new location of b = location of a +4 (int = 4 bytes)

b value = a[1]

c = (int \*) ((char \*) a + 1);

//c points to next location after a, new location of c = location of a +1 (char = 1 //byte), then convert it to int pointer

00000000 00000001 11110100 (10010000 ,00000000 00000000 00000000) 11001000 🡪 0x—50

(-1879048192)