CS240 Lab 6 Assignment – C Pointers

For each numbered expression 1 – 28, evaluate the expression in the first column, and make a prediction for the **type** and the **numeric value** of the expression.

Assume that you are using a machine with 32-bit addresses and integers and little endian storage, and that:

- **char* p = (char*) 0x1100**
- **char* q = (char*) 0x1110**

	type	**numeric address/value** for chars or ints, give ***numeric value,*** for pointer types, give ***numeric address***
0. p	char *	0x1100
1. &p[1]		
2. &p[-1]		
3. &p[0]		
4. &p[1] - &p[0]		
5. &p[8]		
6. (p + 1) - p		
7. &p[16] - p		
8. q - p		
9. sizeof(p)		
10. sizeof(*p)		
//assume the following statement is executed before evaluating statements 11 - 20 **int* ip = (int*) p;**		
11. &ip[0]		
12. &ip[1]		
13. &ip[1] - &ip[0]		
14. (char*) &ip[1] - p		
15. sizeof(ip)		
16. sizeof(*ip)		
17. &ip[sizeof(int)]		
18. ip + sizeof(int)		
19. ip + 1		
20. p + sizeof(int)		
//assume the following statement is executed before evaluating expressions 21 and 22 **int* iq = (int*) q;**		
21. iq - ip		
22. &iq[-1] - ip		

//assume these statements are executed before evaluating expression 23
p[0] = 0;
p[1] = 0;
p[2] = 0;
p[3] = 0;		

23. *ip		
//assume this statement is executed before evaluating expression 24 ***(char*) ip = 1;**		
24. *ip		
//assume this statement is executed before evaluating expressions 25 and 26 ***((char*) ip + 1) = 1;**//		
25. p[1]		
26. *ip		
//assume this statement is executed before evaluating expression 27 and 28 ***((char*) ip) = 2;**		
27. *((char*) ip)		
28. *ip		