



```

int pm(int *p)
{
    int **q;
    int ***r;
    int ****s;

    q = (int **) p;
    r = (int ***) p;
    s = (int ****) p;

    printf("1: %d\n", *p);
    printf("2: %d\n", **q);
    printf("3: %d\n", ***r);
    printf("4: %d\n", ****s);

    printf("5: %d\n", p[1]);
    printf("6: %d\n", q[1][1]);
    printf("7: %d\n", r[1][1][1]);
    printf("8: %d\n", s[1][1][1][1]);
}

```

### Program 5

```

int pm(int *p)
{
    char *s;
    char **t;

    s = (char *) p[3];
    printf("1. %s\n", s);

    s = (char *) p;
    s[0]++;
    s[3] = 'T';
    printf("2. %s\n", s);
    printf("3. 0x%08x\n", *p);
    printf("4. 0x%08x\n", p[1] | p[2]);
    printf("5. 0x%08x\n", p[3] ^ p[4]);

    t = (char **) &(p[5]);
    printf("6. 0x%08x\n", (unsigned int) (*t));
    printf("7. %s\n", *t);
}

```

### Program 6

p is 0x100130

Address:	Decimal	Hex
0x100130:	1048932	0x00100164
0x100134:	1048896	0x00100140
0x100138:	1048924	0x0010015c
0x10013c:	1048904	0x00100148
0x100140:	1048916	0x00100154
0x100144:	1048908	0x0010014c
0x100148:	1048912	0x00100150
0x10014c:	1048884	0x00100134
0x100150:	1048888	0x00100138
0x100154:	1048920	0x00100158
0x100158:	1048900	0x00100144
0x10015c:	1048928	0x00100160
0x100160:	1048880	0x00100130
0x100164:	1048936	0x00100168
0x100168:	1048892	0x0010013c

p is 0x572b20

Address:	Hex	Chars
0x572b20:	0x00572b54	'T'   '+'   'W'   '\0'
0x572b24:	0x00572b30	'0'   '+'   'W'   '\0'
0x572b28:	0x00572b4c	'L'   '+'   'W'   '\0'
0x572b2c:	0x00572b38	'8'   '+'   'W'   '\0'
0x572b30:	0x00572b44	'D'   '+'   'W'   '\0'
0x572b34:	0x00572b3c	'<'   '+'   'W'   '\0'
0x572b38:	0x00572b40	'@'   '+'   'W'   '\0'
0x572b3c:	0x00572b24	'\$'   '+'   'W'   '\0'
0x572b40:	0x00572b28	'('   '+'   'W'   '\0'
0x572b44:	0x00572b48	'H'   '+'   'W'   '\0'
0x572b48:	0x00572b34	'4'   '+'   'W'   '\0'
0x572b4c:	0x00572b50	'P'   '+'   'W'   '\0'
0x572b50:	0x00572b20	' '   '+'   'W'   '\0'
0x572b54:	0x00572b58	'X'   '+'   'W'   '\0'
0x572b58:	0x00572b2c	','   '+'   'W'   '\0'

```
typedef unsigned int UI;
```

### Program 7

```

typedef struct X {
    int *ip;
    char *jp;
    struct X *kp;
    int x;
} XS;

int pm(int *p)
{
    XS *z;

    z = (XS *) p;

    printf("1: %d\n", z->x);
    printf("2: %s\n", z->jp);
    printf("3: %d\n", *(z->ip));
    printf("4: %d\n", z->ip[1]);

    z = z->kp;

    printf("5: 0x%08x\n", (UI) &(z->x));
    printf("6: %s\n", z->jp);
    printf("7: %d\n", *(z->ip));
    printf("8: %d\n", *(z->kp->ip));
}

```

Address:	Decimal	Hex	Chars
0x552c20:	5581900	0x00552c4c	'L'   ','   'U'   '\0'
0x552c24:	5581884	0x00552c3c	'<'   ','   'U'   '\0'
0x552c28:	5581904	0x00552c50	'P'   ','   'U'   '\0'
0x552c2c:	5581892	0x00552c44	'D'   ','   'U'   '\0'
0x552c30:	5581876	0x00552c34	'4'   ','   'U'   '\0'
0x552c34:	5581864	0x00552c28	'('   ','   'U'   '\0'
0x552c38:	5581860	0x00552c24	'\$'   ','   'U'   '\0'
0x552c3c:	5581872	0x00552c30	'0'   ','   'U'   '\0'
0x552c40:	5581888	0x00552c40	'@'   ','   'U'   '\0'
0x552c44:	5581908	0x00552c54	'T'   ','   'U'   '\0'
0x552c48:	5581896	0x00552c48	'H'   ','   'U'   '\0'
0x552c4c:	5581868	0x00552c2c	','   ','   'U'   '\0'
0x552c50:	5581856	0x00552c20	' '   ','   'U'   '\0'
0x552c54:	5581880	0x00552c38	'8'   ','   'U'   '\0'
0x552c58:	5581912	0x00552c58	'X'   ','   'U'   '\0'

p is 0x552c20.

CS360 Midterm #1 – Spring, 2014 – James S. Plank – February 20 – Answer Sheet

1:	Program 1
2:	
3:	
4:	
5:	

Name: \_\_\_\_\_

UTK Email: \_\_\_\_\_

		Program 2
--	--	-----------

		Program 3
--	--	-----------

1:	Program 4
2:	
3:	
4:	

1:	Program 6
2:	
3:	
4:	
5:	
6:	
7:	

1:	Program 5
2:	
3:	
4:	
5:	
6:	
7:	
8:	

1:	Program 7
2:	
3:	
4:	
5:	
6:	
7:	
8:	