Midterm 2 Solutions

Problem 1.
a) yes, fp-4, Need to pass pointer to it for recursive procedure call
b) no
c) the value of %ebx is saved here, because %ebx is a callee-save register.
d) nothing is stored here.

Problem 2.

```
int foo(int *ap, int *bp) {
    int val = *ap;
    *bp += *ap;
    return val;
}
```

Problem 3.
```
typedef struct node {
    double x;
    unsigned short y;
    struct node *next;
    struct node *prev;

} node_t;

node_t n;

void func() {
    node_t *m;
    m = &n;
    m->y /= 16;
}
```

Problem 4.
a) It will return 0 whenever n is odd.
b) `result = result * (i * (i-1));`

Problem 5:
```
int high = max(x,y);

for (i = min(x,y); i < high; incr(&i, 1))
    t+=square(i);
```

Problem 6:
Total number of misses in the first loop: 128
Total number of misses in the second loop: 128
Overall miss rate for reads from st_array: 256/2048
Miss rate for reads from st_array: 1/16