

## Solutions

1. 

```
int fool(int x, int y)
{
    return x-y;
}
```

```
0000000000000000 <fool>:
0:  29 f7  sub  %esi,%edi    set $edi to $edi(x) - $esi(y)
2:  89 f8  mov  %edi,%eax    $eax stores return value
4:  c3     retq                done:
```

2. 

```
int foo2(int x, int n)
{
    int i;
    int sum;
    for (i=0; i<n; i++)
        sum *= x;

    return sum;
}
```

← error in the code, didn't assign 1 to sum.

```
0000000000000000 <foo2>:
0:  85 f6    test %esi,%esi    check value in $esi(n)
2:  7e 07    jle  b <foo2+0xb> if <= 0, goto line b
4:  0f af c7 imul %edi,%eax    Set $eax to $edi(x) * $eax(?)
7:  ff ce    dec  %esi         Decrement $esi(n)
9:  75 f9    jne  4 <foo2+0x4> if $esi != 0 goto line 4
b:  f3 c3    repz retq        done:
```

3. 

```
int foo3(int x, int y)
{
    return (x>=y) ? x:y;
}
```

```
0000000000000000 <foo3>:
0:  39 f7    cmp  %esi,%edi    Compare x and y
2:  0f 4d f7 cmovge %edi,%esi  if (x>y) y = x
5:  89 f0    mov  %esi,%eax    return y
7:  c3     retq
```

```

4. int foo4(int n)
   {
     int total = 0;
     int i,j;
     for (i = 0; i < n; i++) {
       for (j = 0; j < i; j++) {
         total += 8*i + 2*j;
       }
     }
     return total;
   }

```

```

0000000000000000 <foo4>:
0:  31 c0      xor    %eax,%eax      Set total to 0
2:  31 f6      xor    %esi,%esi      Set i to 0
4:  39 f8      cmp    %edi,%eax      compare n:0
6:  7d 1c      jge   24 <foo4+0x24>  if n >= 0 goto line 24
8:  85 f6      test   %esi,%esi      test i
a:  7e 12      jle   1e <foo4+0x1e>  if i <= 0, goto line 1e
c:  8d 0c f5 00 lea   0x0(,%rsi,8),%ecx set $ecx to 8i
13: 89 f2      mov    %esi,%edx      set j to i
15: 01 c8      add    %ecx,%eax      set total to total + $ecx
17: 83 c1 02    add    $0x2,%ecx      set $ecx to $ecx + 2
1a: ff ca      dec    %edx            decrement j
1c: 75 f7      jne   15 <foo4+0x15>  if j != 0, goto line 15
1e: ff c6      inc    %esi            increment i
20: 39 fe      cmp    %edi,%esi      compare n:i
22: 7c e4      jl    8 <foo4+0x8>    if i < n, goto line 8
24: f3 c3      repz  retq            done:

```