LA Worksheet #4

1. `x = x^(~y);`
   `y = y^x;`
   x=1, y=0
   x = 1^1 = 0
   y = 0^0 = 0
   x=1010, y=0101
   x = 1010^1010 = 0000
   y = 0101^0000 = 0101
   y = ~x

2. a) x>ux → (~x+1)<0
   ~x+1 = -x
   x>ux → x is positive
   x = T_{max}?
   T_{max} = 011...1
   $-T_{max}$ = 10...01
   False

   b) ux-2>=-2 → ux<=1
   ux-2>=-2 → -2 written u
   11...01 = U_{max}-2
   ux-2>= U_{max}-2
   True

   c) (x^y)^x = = (x+y)^((x+y)^y)
   x: 1001, y: 1100
   (0101)^1001 = = (0101)^(0101)^(1100)
   1100 = = 0101^1001
   1100 = = 1100
   x: 0010, y: 0001
   0011^0010 = = 0011^(0011^0001)
   0001 = = 0011^0010 ✓
   True

d) (x<0)&&(y<0) == (x+y)<0
False

3. char** apple[5][9] = **360 bytes**
   char* banana[1][9] = **72 bytes**
   char strawberry[4][2] = **8 bytes**

4. typedef struct {
   char first;
   int second;
   short third;
   } stuff
   array[2][2]
   Arr...[1][0].second
   0)ed
   3×256 = 768
   14×16 = 224
   13
   1005

5. scraps = 23
   rdi = 23
   rdi 0x4, max = 23 * 2^4 = 23×16
   368

6. rax = 368
   rax ≤ 400
   I can multiply by 16
   edi > 25, edi < 32