Pep/8 Addressing modes

**Group 1  (i,d,n)**

These are basic modes Immediate, Direct and Indirect. Consider the following example:

```
br main
A: .address B
B: .word 99          (3) A
main: deco A,i
      deco A,d
      deco A,n          (5) B
stop
.end
```

Output is:
- 3 value of \( A \)
- 5 contents of address \( A \)
- 99 contents of address that \( A \) points to

**Group 2  (s,sf,sx,sxf)**

These are the modes that involve the stack
- \( s \) for simple items on the stack
- \( sf \) for simple items pointed to from the stack
- \( sx \) for arrays on the stack
- \( sxf \) for arrays pointed to from the stack

Following code prints 1 2 3 4 from memory shown

```
deco 4,s       ; 1
deco 0,sf      ; 2
ldx 4,i        ; byte offset of ‘3’
deco 6,sxf     ; 3
ldx 6,i        ; index of ‘4’ in array in stack
deco 10,sx     ; 4
```

**Group 3  (x)**

Indexing: Base + register X

The \( i \)th element of array of words \( M \) is at address \( M + 2 \times i \). Each of the following code fragments prints this element

(i)  
```
ldx i,d     ; i
aslx        ; 2 * i
deco M,x    ; output memory\([M + 2*i]\]
```

(ii)  
```
ldx i,d     ; i
adx i,d     ; 2 * i
adx M,i     ; M + 2 * i
deco 0,x     ; output memory\([M + 2*i]\]
```