<table>
<thead>
<tr>
<th>1000</th>
<th>1200</th>
<th>1400</th>
<th>1600</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>000</td>
<td>1000</td>
<td>2000</td>
<td>3000</td>
</tr>
</tbody>
</table>

Amount: $2,000
Sold for: $3,000
Gross Profit: $1,000

Net Profit: $800
Deduct: $200
Net Income: $600
Write an assembly program to sum 3 assigned numbers and divide the sum by 4. Then leave the result in the accumulator. The numbers are $46, 82, 56$.

**Solution**

```
org $2000
ld r0, #46
add a, #82
add a, #56
lea
swi
```

```
0101 0100
0010 1010
0001 0101 -> $15
```

```
= 154
```
You are given the following list of instructions and need to indicate the values of the registers after each instruction is executed, and its addressing mode.

<table>
<thead>
<tr>
<th>Instruction</th>
<th>A</th>
<th>B</th>
<th>X</th>
<th>T</th>
<th>Effective Address</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idx $2003</td>
<td>30</td>
<td>A1</td>
<td>2033</td>
<td>1A80</td>
<td>Extended (M:HI) = X</td>
<td></td>
</tr>
<tr>
<td>Idx 2,+X</td>
<td>48</td>
<td>06</td>
<td>2005</td>
<td>1A80</td>
<td>Indexed (M:HI) = A+X</td>
<td></td>
</tr>
<tr>
<td>ab, #0030</td>
<td>1E</td>
<td>06</td>
<td>2005</td>
<td>1A80</td>
<td>Direct (M:HI) = Y</td>
<td></td>
</tr>
</tbody>
</table>

ExWords: FE 20 0D EC 24 18 06 76 21 03 16 20 03 2A 00 01

```
\[ A \quad B \quad X \quad T \]
\[ 0 \quad 0 \quad 0 \quad 0 \]
\[ 18 \quad 18 \quad 18 \quad 18 \]
\[ 0 \quad 0 \quad 0 \quad 0 \]
\[ 18 \quad 18 \quad 18 \quad 18 \]
\[ 0 \quad 0 \quad 0 \quad 0 \]
```
Consider the following program:

```
ORG $2000
ldab #129
call #FF1
rclab #2
subb #$FA
swi
```

Compute the value of B after each instruction as we work out the value of the NZVC flags.

<table>
<thead>
<tr>
<th>Instruction</th>
<th>B</th>
<th>Z</th>
<th>V</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>ldab #81</td>
<td>81</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>add $F1</td>
<td>82</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>ldab #02</td>
<td>02</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>subb #$FA</td>
<td>08</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

15-comp

```
8 $01 ← 8 - $81
```

```
8 $01 ← 8 - $81
```

Addition (V) Subtraction (V)
```
```
```