Addition:

```
ASSUME CS:CODE, DS:DATA

DATA SEGMENT

N1 DW 2695H

N2 DW 1525H

DATA ENDS

CODE SEGMENT

START:MOV AX,DATA

MOV DS, AX

MOV AX, 0000H

MOV AX, N1

ADD AX, N2

INT 03H

CODE ENDS

END START
```

Explanation:

ASSUME CS:CODE, DS:DATA

ASSUME tells the assembler which segment registers to use.
Here: CS (Code Segment) → will point to segment named CODE.
DS (Data Segment) → will point to segment named DATA.

```
DATA SEGMENT

N1 DW 2695H

N2 DW 1525H

DATA ENDS
```

Defines the data segment.

N1 DW 2695H → Defines a word (16-bit) variable N1 = 2695H.

N2 DW 1525H → Defines a word (16-bit) variable N2 = 1525H.

DATA ENDS → Marks end of data segment.

```
CODE SEGMENT

START: MOV AX, DATA
```

Begins the code segment.

MOV AX, DATA → Load the base address of DATA segment into AX register.

MOV DS, AX

Transfer AX → DS.

Now DS register points to the DATA segment, so variables N1 and N2 can be accessed.

MOV AX, 0000H

Clear AX (set AX = 0).

Not strictly necessary here, since AX will be overwritten in the next step.

MOV AX, N1

Load the value of variable N1 (2695H) into AX.

So AX = 2695H.

ADD AX, N2

Add the value of N2 (1525H) to AX.

AX = 2695H + 1525H = 3BBAH.

INT 03H

This is a breakpoint interrupt (used for debugging).

Execution stops here, allowing you to check AX register contents.

At this point AX = 3BBAH.

CODE ENDS

END START

Marks end of code segment.

END START → tells assembler the entry point (program begins at label START).

Final Execution Summary

DS register set to point to DATA segment.

AX loaded with N1 = 2695H.

AX = AX + N2 = 2695H + 1525H = 3BBAH.

Program halts at INT 03H.

Result (AX register): 3BBAH

Subtraction:

```
ASSUME CS:CODE, DS:DATA

DATA SEGMENT

N1 DW 2695H

N2 DW 1525H

DATA ENDS

CODE SEGMENT

START:MOV AX,DATA

MOV DS, AX

MOV AX, 0000H

MOV AX, N1

SUB AX, N2

INT 03H

CODE ENDS

END START
```

Multiplication:

```
ASSUME CS: CODE

CODE SEGMENT

START:MOV AX,1111H

MOV BX,2222H

MUL AX,BX

INT 3H

CODE ENDS

END START
```

Division:

```
ASSUME CS: CODE

CODE SEGMENT

START:MOV AX,0008H   ; COPY THE CONTENT FROM

MOV BX, 0002H
```

```
DIV BX
INT 3H
CODE ENDS
END START
```