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# Question 1:

# **Write a program that does the following in given order:**

# **Define 4 word-type variables named var1,var2,var3 and var4 initialized to zero**

# **Move following values in variables var1= 4AC8(hex) , Var2 = 478 (decimal), var3= 0110\_1010\_0010\_1101 (binary) and var4 = ‘BD’ (chars)**

# **ADD var1 and var2 and store its result in var1. What answer do you expect in var1**

# **SUB var1 from var3 and store result in var3 . What answer do you expect in var3.**

# **Increment var3 and decrement var1**

# **Swap the values of var1 and var4**

# **Gets the negative value of var3**

# Answer:

|  |  |
| --- | --- |
| 1 | ORG 100h |
| 2 |  |
| 3 | .DATA |
| 4 |  |
| 5 | var1 *DW* 0 |
| 6 | var2 *DW* 0 |
| 7 | var3 *DW* 0 |
| 8 | var4 *DW* 0 |
| 9 | var5 *DB* 0xFFFFh |
| 10 |  |
| 11 | .CODE |
| 12 |  |
| 13 | MOV var1, 4AC8h |
| 14 | MOV var2, 478 |
| 15 | MOV var3, 0110101000101101b |
| 16 | MOV var4, 'BD' |
| 17 |  |
| 18 | MOV AX, var1 |
| 19 | ADD var1, BX    ; 4CA6h |
| 20 |  |
| 21 | MOV AX, var1 |
| 22 | SUB var3, AX    ; 1F65h |
| 23 |  |
| 24 | INC var3 |
| 25 | DEC var1 |
| 26 |  |
| 27 | MOV AX, var4 |
| 28 | XCHG var1, AX |
| 29 | MOV var4, AX |
| 30 |  |
| 31 | NEG var3 |
| 32 |  |
| 33 | RET |

# Question 2:

# **Suppose you define a byte variable var5 initialized to some value. Can you add it to var1 , subtract it from var2 , swap it with var3 and get it's negative value?**

# Answer:

|  |  |
| --- | --- |
| 1 | ORG 100h |
| 2 |  |
| 3 | .DATA |
| 4 |  |
| 5 | var1 *DW* 0 |
| 6 | var2 *DW* 0 |
| 7 | var3 *DW* 0 |
| 8 | var4 *DW* 0 |
| 9 | var5 *DB* 0xFFFFh |
| 10 |  |
| 11 | .CODE |
| 12 |  |
| 13 | MOV var1, 4AC8h |
| 14 | MOV var2, 478 |
| 15 | MOV var3, 0110101000101101b |
| 16 | MOV var4, 'BD' |
| 17 |  |
| 18 | MOV AX, var1 |
| 19 | ADD var1, BX    ; 4CA6h |
| 20 |  |
| 21 | MOV AX, var1 |
| 22 | SUB var3, AX    ; 1F65h |
| 23 |  |
| 24 | INC var3 |
| 25 | DEC var1 |
| 26 |  |
| 27 | MOV AX, var4 |
| 28 | XCHG var1, AX |
| 29 | MOV var4, AX |
| 30 |  |
| 31 | NEG var3 |
| 32 |  |
| 33 | MOV AX, var1    ; ADD var5 to var1 |
| 34 | ADD AL, var5 |
| 35 | MOV var1, AX |
| 36 |  |
| 37 | MOV AX, var2    ; SUB var5 from var2 |
| 38 | SUB AL, var5 |
| 39 | MOV var2, AX |
| 40 |  |
| 41 | MOV AX, var3    ; Swap var5 with var3 |
| 42 | XCHG AL, var5 |
| 43 | MOV var3, AX |
| 44 |  |
| 45 | NEG var5        ; Negative of var5 |
| 46 |  |
| 47 | RET |