

# All Online Learning

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## logical Instructions

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### **;ANI instruction**

;MVI A,12

;ANI 25

;STA 2200

;HLT

### **;Example of AND operation-**

;12 = 00001100 (In Binary)

;25 = 00011001 (In Binary)

;Bit Operation of 12 and 25

; 00001100

;& 00011001

; \_\_\_\_\_

; 00001000 = 8 (In decimal)

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```
;.....  
;ORA instruction  
;.....
```

```
;MVI A,12  
;MVI B,25  
;ORA B  
;STA 2200  
;HLT
```

## **;Example of OR operation-**

```
;12 = 00001100 (In Binary)  
;25 = 00011001 (In Binary)
```

;Bitwise OR Operation of 12 and 25

```
; 00001100  
;| 00011001  
; _____  
; 00011101 = 29 (In decimal)
```

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**;Example of XOR operation-**

;.....

;MVI A,12

;MVI B,25

;XRA B

;STA 2200

;HLT

;12 = 00001100 (In Binary)

;25 = 00011001 (In Binary)

;Bitwise XOR Operation of 12 and 25

; 00001100

;^ 00011001

; \_\_\_\_\_

; 00010101 = 21 (In decimal)

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.....  
;Bitwise complement operator ~  
.....

```
;MVI A,35
;CMA
;STA 2200
;HLT
;35 = 00100011 (In Binary)
```

```
;Bitwise complement Operation of 35
;~ 00100011
; _____
; 11011100 = 220 (In decimal)
```

.....  
;2's Complement  
.....

```
MVI A,12
CMA
STA 2200 ;F3
ADI 01
STA 2201 ; F4
HLT
```

;Decimal	Binary	2's complement
; 0	00000000	-(11111111+1) = -00000000 = -0(decimal)
; 1	00000001	-(11111110+1) = -11111111 = -256(decimal)
; 12	00001100	-(11110011+1) = -11110100 = -244(decimal)
; 220	11011100	-(00100011+1) = -00100100 = -36(decimal)

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