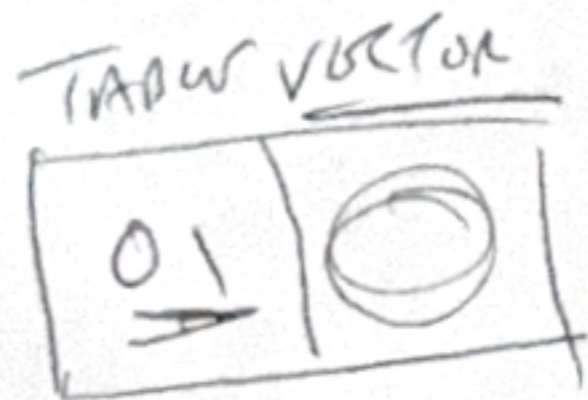
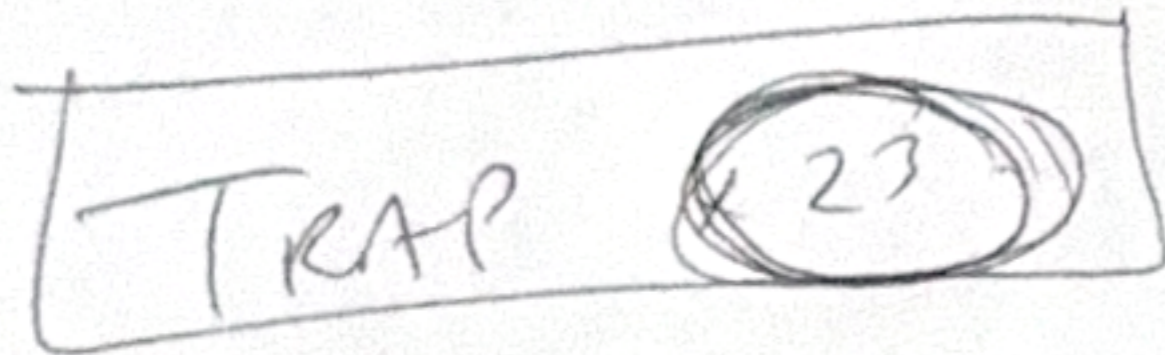
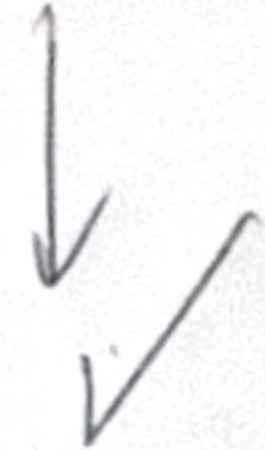
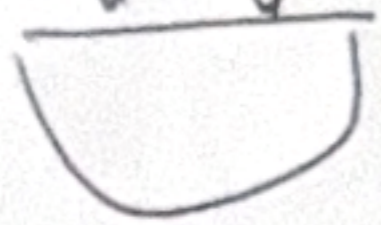
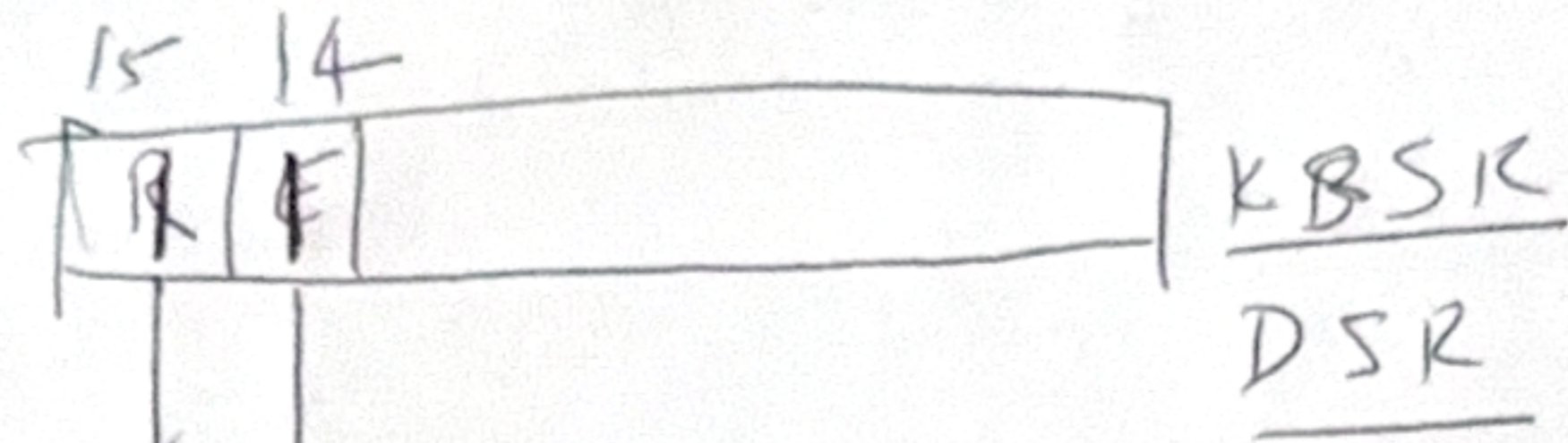
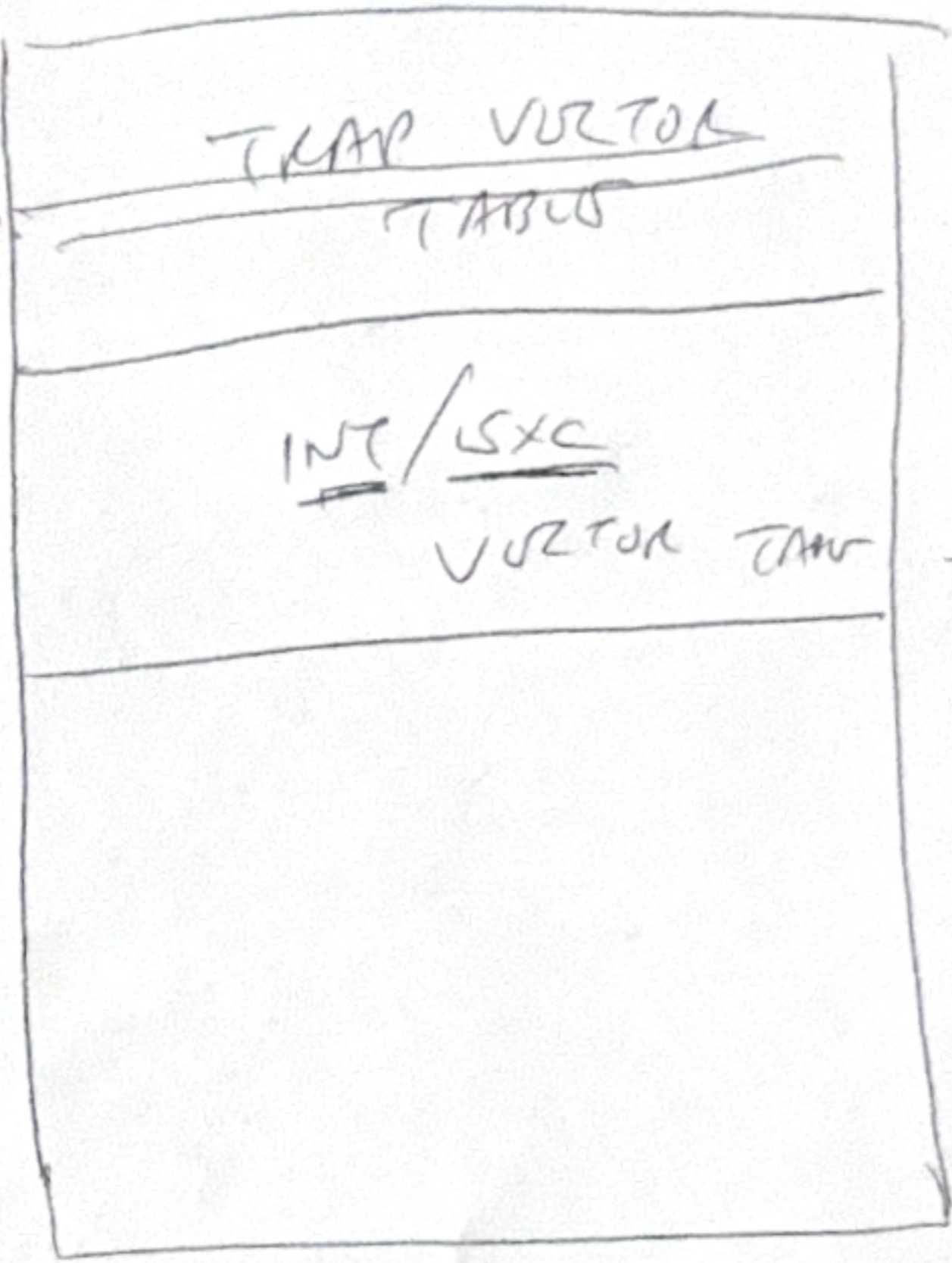


①



Startj
Addr

- x0000
- x000F
- x0100
- x01FF



256

256

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(2)

```

01 .ORIG x04A0
02 START JSR SaveReg
03 LD R2, Newline
04 JSR WriteChar
05 LEA R1, PROMPT
06 :
07 :
08 Loop LDR R2, R1, #0 ; Get next prompt char
09 BRz Input
0A JSR WriteChar
0B ADD R1, R1, #1
0C BRnzp Loop
0D :
0E Input JSR ReadChar
0F ADD R2, R0, #0 ; Move char to R2 for writing
10 JSR WriteChar ; Echo to monitor
11 :
12 LD R2, Newline
13 JSR WriteChar
14 JSR RestoreReg
15 RTI ; RTI terminates the trap routine
16 :
17 Newline .FILL x000A
18 PROMPT .STRINGZ "Input a character>"
19 :
20 WriteChar LDI R3, DSR
21 BRzp WriteChar
22 STI R2, DDR
23 RET ; JMP R7 terminates subroutine
24 DSR .FILL xFE04
25 DDR .FILL xFE06
26 :
27 ReadChar LDI R3, KBSR
28 BRzp ReadChar
29 LDI R0, KBDR
30 RET
31 KBSR .FILL xFE00
32 KBDR .FILL xFE02
33 :
34 SaveReg ST R1, SaveR1
35 ST R2, SaveR2
36 ST R3, SaveR3
37 ST R4, SaveR4
38 ST R5, SaveR5
39 ST R6, SaveR6
40 RET OK
41 :
42 RestoreReg LD R1, SaveR1
43 LD R2, SaveR2
44 LD R3, SaveR3
45 LD R4, SaveR4
46 LD R5, SaveR5
47 LD R6, SaveR6
48 RET OK
49 :
50 SaveR1 .FILL x0000
51 SaveR2 .FILL x0000
52 SaveR3 .FILL x0000
53 SaveR4 .FILL x0000
54 SaveR5 .FILL x0000
55 SaveR6 .FILL x0000
56 .END

```

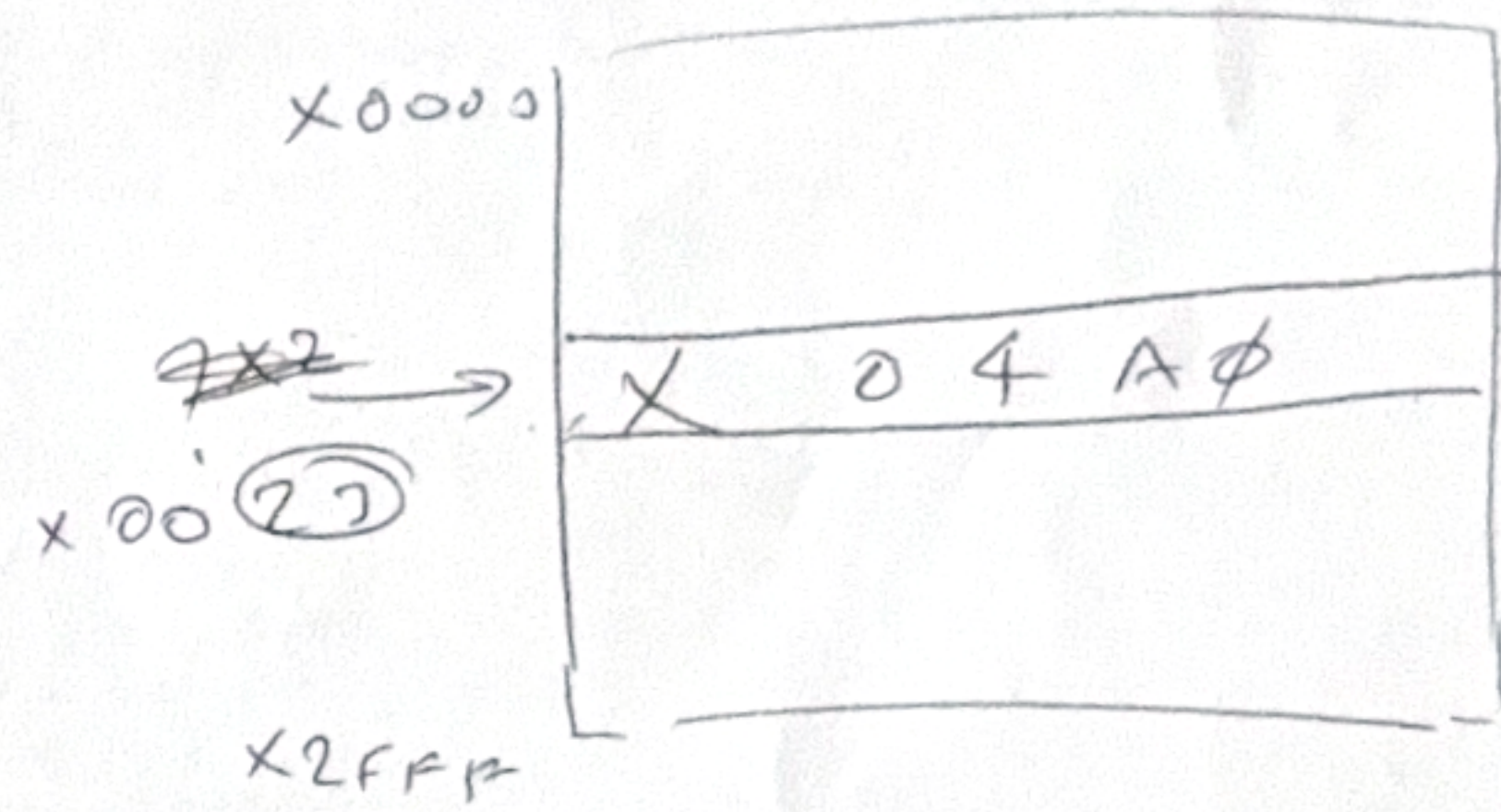


Figure 9.15 The LC-3 trap service routine for character input (our final answer!).