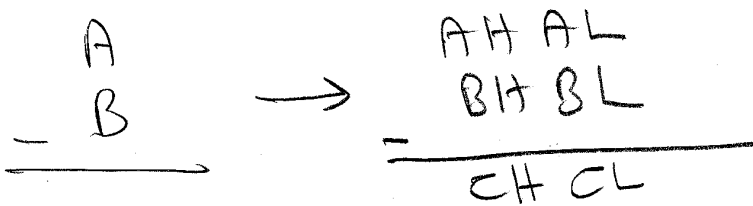
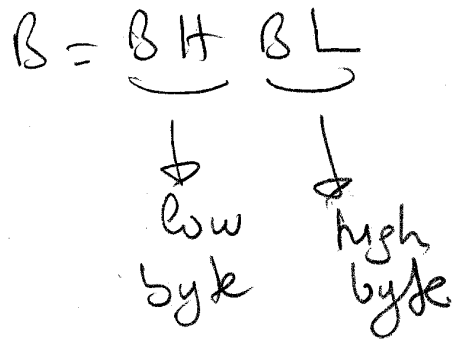
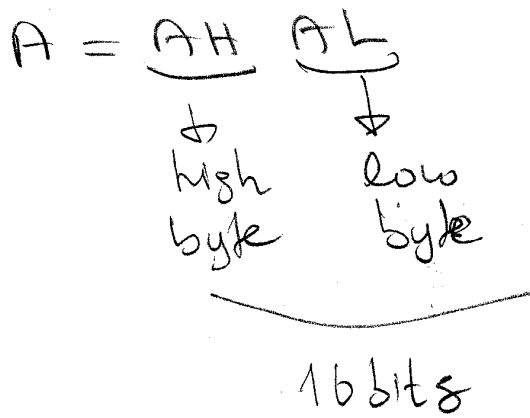


①

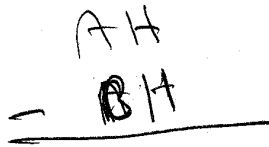
Subtraction of two 16 bit numbers



1) First do $\begin{array}{r} AL \\ - BL \\ \hline \end{array}$ subtraction

If borrow is needed (Borrow / Carry Flag in status register is 0 if borrow is needed)

2) Second perform



Subtraction operation.

2

Ex 8

A = 0x1206

B = 0x0814

AH AL
BH BL

CH CL

Write a program which finds A-B result.
displays the result at PORTB

Sln:

List p=16f84A

include "p16f84A.inc"

clr PORTB;

bsf STATUS, RPO;

clr TRISB;

bcf STATUS, RPO;

AL equ 0x06;

AH equ 0x00;

BL equ 0x0E;

BH equ 0x0F;

movlw 0x06;

movwf AL;

movlw 0x12;

movwf AH;

movlw 0x14;

movwf 0x08;

} load the
numbers
to register
locations

③

subtraction operation

movf BL, W; $W \leftarrow BL$

subwf AL, F; $(AL) = (AL) - \underbrace{W}_{BL}$

btfsc STATUS, C; check carry flag for 0

decf AH, F; if $C=0$ $AH = AH - 1$

↓
due to borrow

movf BH, W; $(W) \leftarrow BH$

subwf AH, W; $(AH) = (AH) - \underbrace{(W)}_{(BH)}$

display result

movf AL, W;

movwf PORTB;

} → show the low byte of result

call delay two-sec;

movf AH, W

movwf PORTB;

→ delay subroutine available in header file (assume)

loop goto loop
end loop

display part can be controlled by RAL of PORTA for this program PORTA as input at the beginning and at display part with display result

movf AL, W
movwf PORTB

④

test-RAL

btfsc PORTA,RAL;

goto test-RAL

movf AH,W

movf PORTB;

loop

goto loop;

end

low byte of
result is
shown
and for the
display of
high byte of
result RAL
press is
needed.