**CSCI240 – Computer Organization and Assembly Language Programming**

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**Assignment:** Homework 6: Programming

1. X3120 contains the instruction JSR offset #9. This is shown by the fact that the PC is changed by nine, and R7 contains the location of the PC after x3210 is executed.

R5 -> x4000

R6 -> x5000

x4000 -> 10

x4001 -> 2

LDR R1 R5 0

LDR R2 R5 1

;Convert R2 to negative for subtraction

NOT R2 R2

ADD R2 R2 1

;Beginning of iteration

ADD R2 R2 R1

;Compare R2 and R1

BRnz 3 ;offset to store remainder

ADD R3 R3 1 ;ADD one to value that will be stored as quotient

BRnzp -3 ;Return to beginning of loop

STR R2 R6 1 ;Store remainder in x5001

STR R3 R6 0 ;Store the value of R3 (Quotient) into x5000

LD R1 #12

LD R2 #13

;Subtract R2 from R1, if result is 0, then R1 = R2

;If < 0, R1 < R2

;If > 0; R1 > R2

NOT R2, R2

ADD R2, R2, +1

ADD R3, R2, R1

BRn 3

BRz 4

BRp 5

LD R0 7 ;Memory location containing -1

JMP END

LD R0 6 ;Mem location containing 0

JMP END

LD R0 5 ;Mem location containing 1

JMP END

HALT

.FILL 10

.FILL 2

.FILL -1

.FILL 0

.FILL 1

END .END