;x and y must be between 0 and 9

;x and y must be single digits

;The quotient and remainder are stored as hex numbers into memory locations 'QUOTIENT' and ;'REMAINDER'

.ORIG X3000

AND R1, R1, #0

AND R2, R2, #0

AND R3, R3, #0

AND R4, R4, #0

LEA R0, WELCOME ;Takes x and y values from users

PUTS

LD R4, KEY

IN

ADD R0, R0, R4

ST R0, VAL1

IN

ADD R0, R0, R4

ST R0, VAL2

LD R1, VAL1 ;solves (x^2 + 5x + 6)

ADD R2, R2, R1

JSR MULTIPLY

LD R4, PRODUCT

LD R1, VAL1

LD R2, NUM

JSR MULTIPLY

ADD R4, R4, R3

ADD R4, R4, #6

ST R4, PRODUCT

JSR DIVISION ;solves the rest of the equation

HALT

MULTIPLY AND R3, R3, #0

LOOP ADD R3, R3, R1

ADD R2, R2, #-1

BRp LOOP

ST R3, PRODUCT

RET

DIVISION AND R2, R2, #0

AND R3, R3, #0

AND R5, R5, #0

LD R1, VAL2

NOT R2, R1

ADD R2, R2, #1

BRz DONE

LOOP2 ADD R4, R4, R2

BRn NEXT

ADD R3, R3, #1

BRnzp LOOP2

NEXT ADD R5, R4, R1

DONE ST R3, QUOTIENT

ST R5, REMAINDER

RET

VAL1 .BLKW 1

VAL2 .BLKW 1

KEY .FILL XFFD0

CHECK .FILL XFFF6

NUM .FILL #5

PRODUCT .FILL X0000

QUOTIENT .BLKW 1

REMAINDER .BLKW 1

WELCOME .STRINGZ "Enter a x and y value"

.END