

1) What is R0 set to in the following code:

```
.ORIG    x3000
ADD     R0,R1,R1
ADD     R0,R0,R0
ADD     R0,R0,R1
ADD     R0,R0,R0
HALT
```

10*R1

2) What is R0 set to in the following code:

```
pop      .ORIG    x3000
AND     R0,R0,#0
ADD     R1,R1,#0      ;; test the msb
BRzp   skipf
ADD     R0,R0,#1
skipf   AND     R2,R2,#0
ADD     R2,R2,#15
loop    ADD     R1,R1,R1      ;; now test the other 15
BRzp   skip
ADD     R0,R0,#1
skip    ADD     R2,R2,#-1
BRp    loop
HALT
.END
```

The number of bits set to 1 in R1

3) What does the following code do:

```
.ORIG    x3000
LEA     R0,FILE      ;; R0 is beginning of string
ADD     R1,R0,#-1
LOOP1   LDR     R3,R1,#1
BRz     DONE1
ADD     R1,R1,#1
BR      LOOP1

DONE1   NOT     R2,R0
ADD     R2,R2,R1

LOOP2   ADD     R2,R2,#0
BRn     DONE2
LDR     R3,R0,#0
LDR     R4,R1,#0
STR     R4,R0,#0
STR     R3,R1,#0
ADD     R0,R0,#1
ADD     R1,R1,#-1
ADD     R2,R2,#-2
BR      LOOP2

DONE2   HALT

FILE    .STRINGZ "This is so much fun!"
.END
```

Reverses a string.