Answers:

1. LDR R1, 42

MOV R2, #10

ADD R1, R1, R2

STR R1, 46

HALT

1. LDR R1, 41

LDR R2, 43

LDR R2, 44

ADD R2, R2, R3

CMP R1, R2

BNE label

MOV R3, #10

HALT

label:

MOV R3, #20

HALT

10

1. LDR R1, 42

LDR R2, 43

LDR R2, 44

SUB R1, R1, R2

SUB R2, R2, R3

CMP R1, R2

BNE different

same:

HALT

different:

HALT

Same

1. LDR R1, 44

MOV R2, R1

LSL R2, R2, 2

ADD R3, R1, R2

AND R4, R1, R2

HALT

R3 = 15, R4 = 0

1. MOV R1, #10

MOV R2, #0

loop:

ADD R2, R2, #2

SUB R1, R1, #1

CMP R1, #0

BEQ end

B loop

end:

HALT

 R2 = 20