PROBLEM 1

```
1234/16 = 77 ; 2
77/16 = 4 ; 13
4/16 = 0 ; 4
(1234)_10_ = (4D2)_16_

23/16 = 1 ; 7
1/16 = 0 ; 1
0.77*16 = 12.32
0.32*16 = 5.12
0.12*16 = 1.92
0.92*16 = 14.72
0.72*16 = 11.52
0.52*16 = 8.32
0.32*16
(23.77)_10_ = (17.C51EB8)_16_

256/16 = 16 ; 0
16/16 = 1 ; 0
1/16 = 0 ; 1
(256)_10_ = (100)_16_

7*16+7 = 112+7 = 119
(77)_16_ = (119)_10_

8*16 = 128
(80)_16_ = (128)_10_

6*16+6 = 96+6 = 102
1/160 = 0.00625
(66.01)_16_ = (102.00625)_10_
```

PROBLEM 2

while X > Y do S

```
MOV R11, X
MOV R12, Y

schlf:
    CMP R11, R12
    JLE end         ;test while cond
    S
    JMP schlf       ;loop

end:
    RET
```

if A = B then begin X:=X+1; Y:=Z end else A:=B

```
MOV RAX, A
MOV RBX, B

MOV R11, X
MOV R12, Y
MOV R13, Z

CMP RAX, RBX
JNE else            ;test if cond

if:
    INC R11
    MOV R12, R13
    JMP end         ;neglect else code

else:
    MOV RAX, RBX

end:
    RET
```

for J:= LAST downto FIRST do S

```
MOV RCX, LAST       ;set counter (J)

schlf:
    CMP RCX, FIRST
    JE end          ;test for condition
    DEC RCX         ;j--
    S
    JMP schlf      ;loop

end:
    RET
```

function f(A, B) return 7 + A * 2 + B * 30;

```
MOV RAX, A
MOV RBX, B

function:          ;params are RAX and RBX
       IMUL RAX, 2
       ADD RAX, 7
       IMUL RBX, 30
       ADD RAX, RBX
       RET            ;return in RAX
```