

shuffle.s using printf for floatingpoint output

```
.section .bss
.align 16
.lcomm result, 16

.section .rodata
format:
.asciz "f1 = %f, f2 = %f, f3 = %f, f4 = %f\n"

.section .data
.align 16
farr0:
.float 0.0, 0.0, 0.0, 0.0
.align 16
farr1:
.float 40.0, 30.0, 20.0, 10.0
.align 16
farr2:
.float 80.0, 70.0, 60.0, 50.0

.section .text
.globl main
.type main, @function
main:
    pushq %rbp
    movq %rsp, %rbp

    vmovaps farr0, %xmm0    # xmm0 = 0
    vmovaps farr1, %xmm1
    vmovaps farr2, %xmm2
    # shuffle
    vshufps $0x72, %xmm2, %xmm1, %xmm0

    vmovaps %xmm0, result

    # print result
    leaq result, %rbx
    leaq format, %rdi
    # only double values can be printed by printf
    vmovss 4(%rbx), %xmm0
    vunpcklps %xmm0, %xmm0, %xmm0
    vcvtps2pd %xmm0, %xmm0
    vmovss 4(%rbx), %xmm1
    vunpcklps %xmm1, %xmm1, %xmm1
    vcvtps2pd %xmm1, %xmm1
    vmovss 8(%rbx), %xmm2
    vunpcklps %xmm2, %xmm2, %xmm2
    vcvtps2pd %xmm2, %xmm2
    vmovss 12(%rbx), %xmm3
    vunpcklps %xmm3, %xmm3, %xmm3
    vcvtps2pd %xmm3, %xmm3
    movq $4, %rax # 4 xmm registers used
    call printf

    # exit main
    movq $0, %rax
    popq %rbp
    syscall
```