

Chapter 4 Homework

CPTR 280

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Exercise 3.10. Assume that `x` is an array of integers, and `i` and `j` are integers. Convert the following C statements into ARM assembly language.

```
//(a)
x[i]=j;
//(b)
x[j]=x[i];
//(c)
x[i]=x[j*2];
```

Solution (a)

```
ldr    r0, =x
ldr    r1, =i
ldr    r2, =j
ldr    r1, [r1]
ldr    r2, [r2]
mov    r1, r1, lsl #2
str    r2, [r0, r1]
```

Solution (b)

```
ldr    r0, =x
mul    r1, #i, #4
ldr    r2, [r0, r1]
mul    r1, #j, #4
str    r2, [r0, r1]
```

Solution (c)

```
ldr    r0, =x
mul    r1, #j, #8
ldr    r2, [r0, r1]
mul    r1, #i, #4
str    r2, [r0, r1]
```