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COEN 20
HW 4

1. Translate each of the following assignment statements into assembly language.

```
(a)
LDR   R0,=a
LDRD  R0,R1,[R0]
LDR   R2,=b
LDRD  R2,R3,[R2]
ADD   R0,R0,R2
STRD  R0,R1,[R0]
```

```
(b)
LDR   R0,=a
LDR   R0,[R0]
LDR   R1,=b
LDR   R1,[R1]
LDR   R2,=c
MUL   R2,R0,R1
```

```
(c)
LDR   R0,=a
LDR   R0,[R0]
LDR   R1,=b
LDR   R1,[R1]
LDR   R2,=c
SDIV  R2,R0,R1
```

```
(g) 1/2
LDR   R0,=a
LDR   R0,[R0]
LDR   R1,=b
LDR   R1,[R1]
```

```
(d)
LDR   R0,=a
LDRD  R0,R1,[R0]
SUB   R0,R0,5
STRD  R0,R1,[R0]
```

```
(e)
LDR   R0,=a
LDR   R0,[R0]
LDR   R1,=b
LDR   R1,[R1]
LDR   R2,=c
MUL   R2,R0,R1
```

```
(f)
LDR   R0,=a
LDR   R0,[R0]
LDR   R1,=b
LDR   R1,[R1]
LDR   R2,=c
UDIV  R2,R0,R1
```

```
(g) 2/2
SDIV  R2,R0,R1
MLS   R0,R1,R2,R0
LDR   R1,=c
STR   R0,[R1]
```

2. Write the assembly equivalent of the Discriminant function.

```
Discriminant:   MUL     R1,R1,R1        // b^2 → R1
                MUL     R0,R0,R2        // ac → R0
                LDR     R3,=4
                MLS     R0,R0,R3,R1     // b^2 - 4ac → R0
                BX      LR              // return
```

3. Write the assembly equivalent of the Volume function.

```
Volume:         MUL     R0,R0,R1        // h x w → R0
                MUL     R0,R0,R2        // h x w x l → R0
                BX      LR              // return
```