

Quiz 3 - Solution

Name: _____

Student #: _____

Give a subroutine implementation of the following code that computes the dot product:

$$\sum_{i=0}^{n-1} A(i) \times B(i)$$

```

                                Move    #AVEC,R1
                                Move    #BVEC,R2
                                Move    N,R3
                                Clear   R0
LOOP    Move    (R1)+,R4
                                Multiply (R2)+,R4
                                Add     R4,R0
                                Decr    R3
                                Branch>0 LOOP
                                Move    R0,DOTPROD
    
```

Calling Program		Subroutine	
Move	N,-(SP)	DPSUB	Move FP,-(SP)
Move	#BVEC,-(SP)		Move SP,FP
Move	#AVEC,-(SP)		MoveMult R0-R4,-(SP)
Call	DPSUB		Move 8(FP),R1
Move	(SP),DOTPROD		Move 12(FP),R2
Add	#12,SP		Move 16(FP),R3
...			Clear R0
		LOOP	Move (R1)+,R4
			Multiply (R2)+,R4
			Add R4,R0
			Decr R3
			Branch>0 LOOP
			Move R0,8(FP)
			MoveMult (SP)+,R0-R4
			Move (SP)+,FP
			Return