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ICS 312
Quiz Solution #4
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Passing Argument Via the Stack

Question: Calling the subroutine using the stack.

```
Answer:          title calc (calc.asm - a separated file)
                   public calc
                   .model small
                   .code
calc  proc near          ; evaluates X - 2Y, the result in ax.
      push            bp          ; save bp.
      mov             bp, sp      ; bp points to the stack top.
      mov             ax, [bp + 4] ; ax has X.
      sub             ax, [bp + 6] ; ax = X - Y.
      sub             ax, [bp + 6] ; ax = X - 2Y.
      pop            bp          ; restore bp.
      ret             4          ; pop IP and add 4 to sp.
calc  endp
      end
```

Question: Calling the subroutine by reference using the stack.

```
Answer:          title calc (calc.asm - a separated file)
                   public calc
                   .model small
                   .code
calc  proc near          ; evaluates X - 2Y, the result in ax.
      push            bp          ; save bp.
      mov             bp, sp      ; bp points to the stack top.
      mov             bx, [bp + 4] ; bx has the address of X.
      mov             ax, [bx]     ; ax has the value of X.
      mov             bx, [bp + 6] ; bx has the address of Y.
      sub             ax, [bx]     ; ax = X - Y.
      sub             ax, [bx]     ; ax = X - 2Y.
      pop            bp          ; restore bp.
      ret             4          ; pop IP and add 4 to sp.
calc  endp
      end
```