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                        Assignment 1119
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Q1:
a.
add $t0, $s1, $s2 # add b + c, put the result in t
add $s0, $t0, $s0 # add (b + c) + a, put the result in a

b.
add $t0, $s0, $s1  # store a + b into temporary variable t0
sub $t1, $s0, $s1  # store a - b into temporary variable t1
sub $s1, $t0, $t1  # final result: b = (a + b) - (a - b)

c.
add $t0, $s0, $s1  # store a + b into temporary variable t0
sub $t1, $t0, $s2  # store a + b - c into temporary variable t1
sub $t2, $s0, $t0  # store a - (a + b) into temporary variable t2
add $t3, $t2, $t1  # store a - (a + b) + (a + b - c) into
                   # temporary variable t3
sub $s3, $t3, $s3  # final result: d = a - (a + b) + (a + b - c) - d

Q2:
a.
lw $t0, 0($s0)     # copy a to $t0
sw $t0, 4($s6)     # copy $t0 to A[1]

b.
lw $t0, 8($s6)     # copy A[2] to $t0
sw $t0, 0($s1)     # copy $t0 to b

c.
sll  $t1, $s4, 2   # $t1 = i * 4
addu $t1, $t1, $s6 # $t1 = &A[i]
lw   $t0, 0($t1)   # copy A[i] to t0
sw   $t0, 0($s2)   # copy t0 to c

d.
sll  $t1, $s4, 2   # $t1 = i * 4
addu $t2, $t1, $s7 # $t2 = &B[i]
lw   $t0, 0($t2)   # copy B[i] to $t0
addu $t3, $t1, $s6 # $t3 = &A[i]
sw   $t0, 0($t3)   # copy t0 to t3

e.
sll  $t1, $s4, 2   # $t1 = i * 4
addu $t2, $t1, $s7 # $t2 = &B[i]
lw   $t0, 4($t2)   # copy B[i + 1] to t0
addu $t3, $t1, $s6 # $t3 = &A[i]
sw   $t0, -4($t3)  # copy B[i + 1] to A[i - 1]

Q3:
a.
addi $s0, $s0, 1   # ++a
sw   $s0, 0($s1)   # b = ++a

b.
addi $s0, $s0, 1   # ++a
sw   $t1, 0($s0)   # t1 = ++a
sub  $t0, $t1, $s1 # t0 = t1 - b
sw   $t0, 0($s2)   # c = ++a - b
addi $t0, $t0, 1   # t0++
sw   $t0, 0($s1)   # b = ++a - b++

c.
add $t0, $s0, $s1  # store a + b into temporary variable t0
add $t1, $t0, $s2  # store a + b + c into temporary variable t1
add $t2, $s2, -1   # store c + -1 into temporary variable t2
sub $t3, $t2, $s3  # store a + -1 - d into temporary variable t3
sub $t4, $s0, -5   # store a - -5 into temporary variable t4
add $t5, $t1, $t3  # store (a + b + c) + (a + -1 - d) into
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                     # temporary variable t4
sub $s2, $s5, $t4  # final result:c = (a + b + c) + (a + -1 - d) - (a - -5)

Q4:
a.
addu $s0, $s2, $s4
000000 10010 10110 10000 00000 100001
0000 0010 0101 0110 1000 0000 0010 0001
0x02548021

b.
sub $t1, $zero, $t1
000000 00000 01001 01001 00000 100010
0000 0000 0000 1001 0100 1000 0010 0010
0x00094822

c.
lw $fp, 0($zero)
100011 00000 11110 0000000000000000
1000 1100 0001 1110 0000 0000 0000 0000
0x8c1e0000

d.
sw $ra, -16($t7)
101011 01111 11111 1111111111110000
1010 1101 1111 1111 1111 1111 1111 0000
0xadffffff0

Q5:
a. 0x00028821
0000 0000 0000 0010 1000 1000 0010 0001
000000 00000 00010 10001 00000 100001
addu $s1, $zero, $v0

b. 0x34020004
0011 0100 0000 0010 0000 0000 0000 0100
001101 00000 00010 0000000000000100
ori $v0, $zore, 4

c. 0x0211082a
0000 0010 0001 0001 0000 1000 0010 1010
000000 10000 10001 00001 00000 101010
slt $at, $s0, $s1

d. 0x27a50004
0010 0111 1010 0101 0000 0000 0000 0100
001001 11101 00101 0000000000000100
addiu $a1, $sp, 4

Q6:
a.
enter:
    beq $0, $s1, else     # go to else if a == b
    lw $t0, 0($s1)        # t0 = b
    sw $t0, 0($s0)        # copy t0 to a
    j  exit               # goto exit
else:
    sub $s1, $zero, $s0   # b = -a
exit:

b.
loop:
    addi $t0, $s0, 1      # t0 = a + 1
    sll  $t1, $s1, 1      # t1 = 2 * b
    bne  $t0, $t1, exit   # goto exit if a + 1 != 2 * b
    add  $t1, $s0, $s0    # t1 = a + a
    add  $s0, $s0, $t1    # s0 *= 3
    j    loop             # go to loop
exit:
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c.
loop:
    slt   $t0, $s0, $s1        # t0 = a < b? 1 : 0
    beq   $t0, $zero, enter    # goto exit if a > b
    enter:
        bne   $s0, $s1, exit   # goto exit if a != b
    subi  $t1, $s0, 100        # t1 = a - 100
    slli  $s1, $t1, 2          # b = 4 * (a - 100)
    addi  $s0, $s0, 1          # a++
    j     loop                 # go to loop
exit:
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