HW 2

1. a) 1010 1101 0001 0000 0000 0000 0000 0010

0101 0010 1110 1111 1111 1111 1111 1101

+ 1

1110

= -1,391,460,350

b)

OP	Rs	Rt	Immediate		
101011	01000	10000	00000	00000	000010
43	8	16	0	0	2
Store word	$s0	$t0			

MIPS Code = sw $s0, 2($t0)

2.
```
addu $t1, $t2, $zero
bgez $t2, next
subu $t1, $zero, $t2
```

3.
a.)
```
addu $t1, $t2, $zero
```
b.)
```
addu $t5, $zero, $zero
```
c.)
```
lui $t5, upper16
ori $t5, $t5, lower16
```
d.)
```
lui $at, upper16
ori $at, $at, lower16
add $t5, $t3, label
```
e.)
```
lui $at upper16
ori $at, $at, lower16
beq $t5, $at, label
```
f.)
```
slt $at, $t3, $t5
beq $at, $zero, label
```
g.)
```
slt $at, $t3, $t5
bne $at, $zero, label
```
h.)
```
slt $at, $t3, $t5
beq $at, $zero, label
```

HW2

4. a.)
```
bgt  $S0, $S1, A1
ble  $S1, $S2, next

A1:
 ori $S3, $zero, 1
Next:
```

b)
```
bge $S0, $S1, Next
ble $S1, $S2, Next
ori $S3, $zero, 1

Next:
```

5.
```
addu  $t0, $zero, $zero
addu  $t1, $a0, $zero
addu  $t2, $a1, $zero
addiu $t3, $zero, 101

Loop: lw   $t4, 0($t2)
addu  $t5, $t4, $s0
sw    $t5, 0($t1)
addiu $t0, $t0, 1
addiu $t1, $t1, 4
addiu $t2, $t2, 4
bne   $t0, $t3, Loop
```

HW2

6. Line 1: # $t0 = 0
Line 2: # $t1 = 1
Line 3: # $t1 > $a0 or $a0 = $t1
Line 4: # exits loop when $t1 > $a0
Line 5: # $t0 = $t0 + $t1
Line 6: # $t1 = $t1 + 2
Line 7: # Loops back
Line 8: # $v0 = $t0

The output, $v0, is summation of odd positive ints less or equal to n

7. Checks an array for equal values. $v0 is the count of occurrances of value with the most matches. $v1 is the value of that element.