WEEK 1 TASK 2

* Calculate 10-19 , 20+30 , 36-12 in signed, 1s and 2s complement.
* Using 1s complement
  + 10 – 19

(10)10 = (01010)2  = 0 010102

(-19)10 = -(10011)2  = 1 011002

0 01010

+1 01100

1 10110 no carry, take 1s complement of the result

1 01001 <- result

* + 20 + 30

(20)10 = (10100)2  = 0 101002

(30)10 = (11110)2  = 0 111102

0 10100

+0 11110

0 1 10010

0 110010 <- result

* + 36 - 12

(36)10 = (100100)2  = 0 1001002

(-12)10 = -(001100)2  = 1 1100112

0 100100

+1 110011

1 0 010111 add carry to lower bit

0 011000 <- result

* Using 2s complement
  + 10 – 19

(10)10 = (01010)2  = 0 010102

(-19)10 = -(10011)2  = 1 011012

0 01010

+1 01101

1 10111 no carry, take 2s complement of the result

1 01001 <- result

* + 20 + 30

(20)10 = (10100)2  = 0 101002

(30)10 = (11110)2  = 0 111102

0 10100

+0 11110

0 1 10010

0 110010 <- result

* + 36 - 12

(36)10 = (100100)2  = 0 1001002

(-12)10 = -(001100)2  = 1 1101002

0 100100

+1 110100

1 0 011000 discard carry

0 011000 <- result

* Using signed
  + 10 – 19

(10)10 = (01010)2  = 0 010102

(-19)10 = -(10011)2  = 1 100112

0 01010

+1 10011

1 11101

* + 20 + 30

(20)10 = (10100)2  = 0 101002

(30)10 = (11110)2  = 0 111102

0 10100

+0 11110

0 1 10010

* + 36 - 12

(36)10 = (100100)2  = 0 1001002

(-12)10 = -(001100)2  = 1 0011002

0 100100

+1 001100

1 110000