TEJ4M

Representing Negative Numbers

1. State the binary equivalent of the following decimal numbers using :
   a) 54 = _____
   b) -54 = _____
   c) -79 = _____
   d) -89 = _____
   e) -114 = _____
   f) -127 = _____
2. State the binary equivalent of the following decimal numbers using Two's Complement:
   a) 54 = _____
   b) -54 = _____
   c) -79 = _____
   d) -89 = _____
   e) -114 = _____
   f) -127 = _____

Multiplication and Division in Binary

Multiplying Binary:
Remember 1 x 1 = 1, 1 x 0 = 0 , 0 x 1 = 0

1. 111 x 10 =
2. 11011 x 101 =
3. 110 x 1101001 =
4. 101101 x 00101 =

Dividing Binary:

5. 110÷ 10=
6. 11011 ÷ 101 =
7. 110 ÷ 1101001 =
8. 101101 ÷ 00101 =

Representing Negative Numbers

Single Magnitude Method.

1) a) 54 = 0011 0110

b) -54 = 1011 0110

c) 79 = 0100 1111
-79 = 1100 1111

d) 89 = 0101 1001
-89 = 1101 1001

e) 114 = 0111 0010
-114 = 1000 0010

f) 127 = 0111 1111
-127 = 1111 1111

Two's Complement

2) a) 54 = 0011 0110

b) -54 = 1100 1001
+ 1
1100 1010

c) 79 = 0100 1111
-79 = 1011 0000
+ 1
1011 0001

d) 89 = 0101 1001
-89 = 1010 0110
+ 1
1010 0111

e) 114 = 0111 0010
-114 = 1000 1101
+ 1
1000 1110

f) 127 = 0111 1111
-127 = 1000 0000
+ 1
1000 0001

Multiplication and Division in Binary

Multiplying Binary

1)
```
  111
x  10
 ----
  000
+1110
 ----
 1110
```

2)
```
  11011
x   101
 -----
  11011
 000000
+11011
 -----
 10000111
```

3)
```
  1101001
x      110
 -------
  0000000
 1101001
+1101001
 -------
 1001110110
```

4)
```
   10110 1
x  00101
 --------
   10110 1
  0000000
 10110100
+10110100
 --------
 00111000001
```

Dividing Binary

5)
```
    11
 ------
10 | 110
   -10
   ---
    10
   -10
   ---
     0
```

6)
```
     101
 ---------
101 | 1011
    - 101
    -----
      001
    -   0
    -----
      011
    -  101
    -----
      010
```

7)
```
       0
 -------
1101001 | 110
        - 0
        -----
          110
```

8)
```
     1001
 ---------
0010 | 10110 1
       101
       ---
        01
         0
        --
        010
         0
        ---
        0101
      - 0010
        ----
```