Chapter 1 Activity

1. Convert the following numbers from base 10 to base 2.

A. 5	B. 9
C. 19	D. 22
E. 31	F. 32
G. 46	H. 67

2. Convert the following numbers from base 10 to base 16.

A. 5	B. 9
C. 19	D. 22
E. 31	F. 32
G. 46	H. 67

3. Convert the following numbers from base 16 to base 2.

A. A	B. 14
C. AC	D. 4E
E. 31F	F. 4CC
G. 4A5	H. B67

4. Convert the following numbers from base 2 to base 10.

A. 1010100	B. 1010
C. 110011	D. 101111
E. 10001	F. 1111
G. 10000111	H. 101101

5. Convert the following numbers from base 2 to base 16.

A. 10101	B. 10101101
C. 10011110000	D. 110100110
E. 100000000	F. 110010
G. 100110	H. 110111001

6. Determine the result for the following operations (the numbers are base 2).

A.
`  1 1 1`
`+  1 0`
`---------`
	B.
	`  1 0 1`
	`+  1 0`
	`----------`

C.
`  1 0 1 0`
`+  1 1 0`
`-------------`
	D.
	`  1 0 1 0`
	`+ 1 0 1 0`
	`-------------`

E.
`  1 0 1 0`
`+ 1 1 1 1`
`-------------`
	F.
	`  1 0 1 1`
	`+  1 0 1`
	`-------------`

G.
`  1 1 1 1 0`
`+  1 1 1 0`
`----------------`
	H.
	`  1 0 1 1 1 0`
	`+  1 0 1`
	`------------------`

7. Determine the result for the following operations (the numbers are base 16).

A.
`  2 F D`
`+  1 A`
`---------`
	B.
	`  1 0 1`
	`+  1 0`
	`----------`

C.
`  A B C`
`+  1 1`
`---------`
	D.
	`  A B C D`
	`+ 1 A 1 B`
	`-------------`

E.
`  9 A B C`
`+ 1 2 3 4`
`-------------`
	F.
	`  2 2 3 1`
	`+  2 4 9`
	`-------------`

8. Determine the result for the following operations (the numbers are base 2).

A.
`  1 1 1`
`- 1 0`
`---------`
	B.
	`  1 0 1`
	`- 1 0`
	`----------`

C.
`  1 0 1 0`
`- 1 1 0`
`-------------`
	D.
	`  1 0 1 0`
	`- 1 0 1 0`
	`-------------`

E.
`  1 1 1 1`
`- 1 0 1 0`
`-------------`
	F.
	`  1 0 1 1`
	`- 1 0 1`
	`-------------`

G.
`  1 1 1 1 0`
`- 1 1 1 0`
`----------------`
	H.
	`  1 0 1 1 1 0`
	`-   1 0 1`
	`------------------`

9. Determine the result for the following operations (the numbers are base 2).

A.
`  1 0 1 1 1 0`
`NOT ------------------`
	B.
	`  1 0 1 1 1 0`
	`AND 1 1 1 0 0 0`
	`------------------`

C.
`  1 0 1 1 1 0`
`OR 1 0 0 0 1 1`
`------------------`
	D.
	`  1 1 1 0 0 0`
	`XOR 1 0 0 0 1 1`
	`------------------`

10. Complete the following table.

	Decimal	Signed Positive Binary	One's Complement	Two's Complement
A.	-5_{10}			
B.	-17_{10}			
C.	-42_{10}			

11. Complete the following table.

	Hex	One's complement	Two's complement	Decimal equivalent
A.	$6AF_{16}$			
B.	17_{16}			
C.	$42A6_{16}$			