1. **Convert the following binary numbers to octal.**

   A. 111110110

   B. 1000001

   C. 10000010

   D. 1100010

2. **Convert the following binary numbers to hexadecimal.**

   A. 10101001

   B. 11100111

   C. 01101110

   D. 01121111

3. **Convert the following hexadecimal numbers to octal.**

   A. A9

   B. E7

   C. 6E

4. **Convert the following octal numbers to hexadecimal.**

   A. 777

   B. 605

   C. 443

   D. 521

   E. 1

5. **Convert the following decimal numbers to octal.**

   A. 901

   B. 321

   C. 1492

   D. 1066

   E. 2001

6. **Convert the following decimal numbers to binary.**

   A. 45

B. 69

C. 1066

D. 99

E. 1

7. **Convert the following decimal numbers to hexadecimal.**

A. 1066

B. 1939

C. 1

D. 998

E. 43

8. **Perform the following octal additions**

A. 770 + 665

B. 101 + 707

C. 202 + 667

9. **Perform the following hexadecimal additions**

A. 19AB6 + 43

B. AE9 + F

C. 1066 + ABCD

10. **Perform the following octal subtractions.**

A. 1066 – 776

B. 1234 – 765

C. 7766 – 5544

11. **Perform the following hexadecimal subtractions.**

A. ABC – 111

B. 9988 – AB

C. A9F8 – 1492

Using an 8 bit word length, store the following decimal values as Sign Magnitude and 2's Complement:

              Sign Magnitude   2's Complement

1) -94   _____   _____

2) +110   _____   _____

3) -23   _____   _____

4) +49   _____   _____

Using a 10 bit word length store following decimal values as Sign Magnitude and 2's Complement:

              Sign Magnitude   2's Complement

5) +278   _____   _____

6) -190   _____   _____

7) -2   _____   _____

8) +87   _____   _____

Convert following binary values to decimal assuming they are stored as Sign Magnitude & then as 2's Complement:

                    Sign Magnitude   2's Complement

9) 1011 1011   _____   _____

10) 0011 1101   _____   _____

11) 1110 1101   _____   _____

12) 0101 1000   _____   _____

13) 0110 1101 0111 _____   _____

14) 1011 0110 1101 _____   _____

15) 0001 0110 1010 _____   _____

16) 1111 1101 1011 _____   _____

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3. In the following problems, each bit pattern represents a value stored in
   two's complement notation. Perform each addition, and show the result in
   two's complement. Check your answers by translating each problem into
   decimal notation.

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 0101          0011          0101          1110          1010
+0010         +0001         +1010         +0011         +1110
-----         -----         -----         -----         -----
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