

**Convert the following binary numbers to decimal:**

1)  $(111101)_2$

2)  $(11000101)_2$

3)  $(101011011)_2$

4)  $(10011101)_2$

5)  $(101000101)_2$

6)  $(1001001101)_2$

7)  $(100101.001)_2$

8)  $(1100101.01101)_2$

9)  $(101001101.00111)_2$

10)  $(0.1100111)_2$

**Convert the following decimal numbers to binary:**

1)  $(75)_{10}$

2)  $(90)_{10}$

3)  $(145)_{10}$

4)  $(740)_{10}$

5)  $(2316)_{10}$

6)  $(46.8125)_{10}$

7)  $(70.125)_{10}$

8)  $(166.3125)_{10}$

9)  $(232.75)_{10}$

10)  $(177.6875)_{10}$

11)  $(0.426)_{10}$

**Perform the indicated math operations:**

$$(1111011)_2 + (1001111)_2 =$$

$$(10110011)_2 + (10101111)_2 =$$

$$(11111011)_2 - (10100110)_2 =$$

$$(1111011)_2 \times (1101)_2 + (1011111011)_2 =$$

$$(1101011)_2 + (1111) \times (1111010001)_2 =$$

$$(11001111)_2 \times (11010)_2 - (1111001)_2 =$$

$$(10011010111)_2 - (110) \times (10011)_2 =$$

$$(11011110)_2 + (10001010)_2 - (111011)_2 =$$

$$(1001100100)_2 \div (1001)_2 =$$

$$(10000011010)_2 \div (1110)_2 =$$

$$(1010101000)_2 \div (1000)_2 =$$

$$(10010000011)_2 \div (111)_2 =$$

Express -12 in 8-bit 2's complement notation.

Express -45 in 8-bit 2's complement notation.

Express -95 in 8-bit 2's complement notation.

Evaluate the following expressions in binary system:

$$(+45) + (-97)$$

$$(-53) + (+36)$$

$$(+12) + (-10) + (-14)$$

Evaluate the following expressions in binary system, use 2's complement notation:

$$(10011)_2 - (11110)_2 =$$

$$(10101)_2 - (11011)_2 =$$

**Convert the following hexadecimal numbers to decimal:**

$$(4A3)_{16}$$

$$(2BD)_{16}$$

$$(1F20)_{16}$$

$$(5AE)_{16}$$

$$(EA51.0B)_{16}$$

$$(E0A2.CA2)_{16}$$

$$(50B6A.3F)_{16}$$

$$(B6.A2)_{16}$$

**Convert the following decimal numbers to hexadecimal:**

$(76)_{10}$

$(154)_{10}$

$(387)_{10}$

$(515)_{10}$

$(2045)_{10}$

$(0.00390625)_{10}$

$(48.0625)_{10}$

**Convert the following binary numbers to hexadecimal:**

$(11100011100)_2$

$(1010011010)_2$

$(10101001011110)_2$

$(110010)_2$

$(101001)_2$

$(101001.0010)_2$

$(1101101.1010)_2$