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**Exercise 1.**

*Give the next four numbers in each of the following hex sequences.*

1. $2A6;\ 2A7;\ 2A8;\cdots$ .
2. $C997;\ C998;\cdots$ .

**Exercise 2.**

1. *Convert the following decimal numbers to binary, octal and hexadecimal.*

$$17;\ 75;\ 154;\ 1548.$$

2. *Convert the following numbers to decimal.*

$$10011_2;\ 100001_2;\ 26_8;\ 137_8;\ 1AC_{16};\ 2DF_{16}.$$

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

$$110111011_2;\ 1001101_2;\ 1111010_2;\ 11001_2.$$

4. *Convert the following numbers to hexadecimal.*

$$543_8;\ 142_8;\ 2103_8;\ 1264_8.$$

5. *Convert the following numbers to octal.*

$$4AC_{16};\ 9FF_{16};\ B6_{16};\ 45_{16}.$$

**Exercise 3.**

1. *Use the Newton's Binomial Theorem to develop*

$$(a+1)^5.$$

2. *Deduce the numerical representation of the fifth power of thirteen in the radix twelve representation.*

**Exercise 4.**

1. *Convert the following decimal numbers to binary, octal and hexadecimal.*

$$147.25;\ 252.3125;\ 245.7125.$$

2. *Convert the following numbers to decimal.*

$$1101.011_2;\ 110110.10011_2;\ 146.54_8;\ 2C.4_{16}.$$

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

$$1001.011_2;\ 100.1101_2.$$

4. *Convert the following numbers to hexadecimal.*

$$23.5_8;\ 74.2_8.$$

5. *Convert the following numbers to octal.*

$$4F.4_{16};\ 2A.F_{16}.$$

**Exercise 5.** *Find the radix $x$ of the arithmetic equation*

$$\frac{302_x}{20_x} = 12.1_x.$$

**Exercise 6.** *Do the binary arithmetic.*

1. $11011 + 1011$.
2. $11101 - 1101$.
3. $1101 \times 101$.
4. $100001 \div 1011$.